



REPUBLIC

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581
D

The Recognized Standard ^{1 Ton} _{1½ Ton} Motor Truck \$1350.00 \$1475.00 (Chassis)

The Honest Truck at an Honest Price



REPUBLIC TRUCKS are used in every business, wholesale and retail. The field is unlimited, because this type, price, and capacity truck meets all local transportation conditions.

THE TRUCK LIVE DEALERS ARE SELLING LIVE MERCHANTS

Dealer's Asset:—Price—Reliability—Popularity

Territory is being rapidly closed. Every day this factory is visited by live dealers who sense the business opportunities of connecting with a strong financial truck organization—one that is here to stay.

The big selling season for Commercial Cars is here. Come to the factory or write promptly for territory, terms, and complete data.

REPUBLIC MOTOR TRUCK COMPANY
(Formerly Alma Motor Truck Company)

Factories:
Alma, Michigan



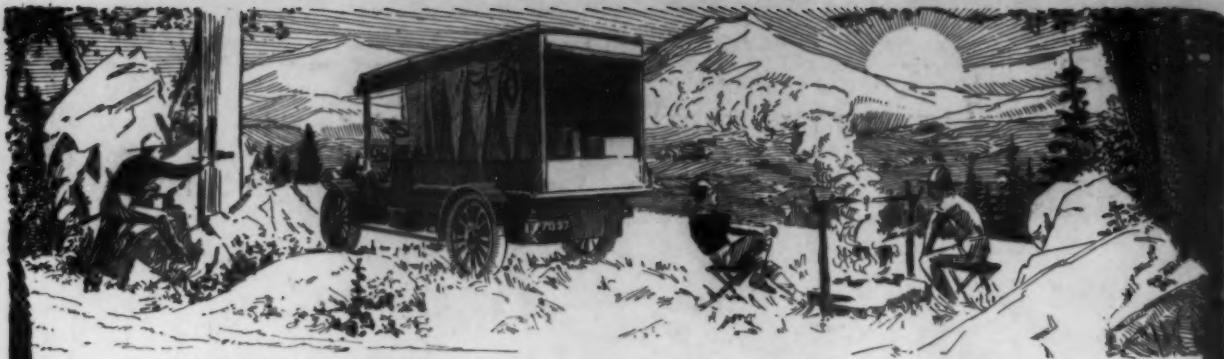
1 and 1½-Ton
Motor Trucks



CHILTON

MARKET & 39TH STS.
PHILADELPHIA

TL
C 57



The Auto Trail Blazing Association
has paid a signal honor to the
Bessemer Truck

in selecting it as the motor vehicle with which to make one of the largest trail blazing trips ever made. The truck, under the direction of A. L. Meigs, of the Automobile Trail Blazing Association, started from New York and is now on its way to Seattle, Washington. All along the route, from start to finish, trees, telephone and telegraph poles are being painted in different colors, according to a pre-arranged signal system, so that any motorist may travel from ocean to ocean, without any knowledge of the country, simply by following the marks on the trees and poles.

The BESSEMER TRUCK was chosen because of its well-known efficiency, its remarkable reliability and its oft-proved ability to overcome obstacles that may be met in the course of travel.

The smallest of the three BESSEMER models was selected because this \$1250 truck showed itself fully adequate for the task before it. Its strength and capabilities are shown by the fact that, though rated as a one-ton truck, it is carrying a full ton of paint in addition to its force of men, their personal effects and camping paraphernalia, for they live in the truck during the entire trip.

Sturdiness is built in every inch of the BESSEMER, from radiator to tail gate. Before leaving the factory each truck is subjected to a test that is many times more severe than it will ever receive in service.

Three Models Fit Every Truck Requirement. Bodies Built to Suit Purchaser

Model "C," 25 H. P., \$1250 Chassis
1 ton capacity, chain drive

Model "A," 30 H. P., \$1800 Chassis
1½ to 2 tons capacity, chain drive

Model "D," 30 H. P., \$2300 Chassis
1½ to 2 tons capacity, worm drive

Dealers: Get our proposition—it's a live one

BESSEMER MOTOR TRUCK CO., Grove City, Pa.

BRANCHES:

Boston
Pittsburgh

A. C. VANDERPOEL
Export Representative
18 Broadway
New York City



When Writing, Please Say—"Saw Your Ad. in the C C J"

THE PUBLISHERS' PERSONAL PAGE

"Success doesn't come to those who wait—and it doesn't wait for anyone to come to it."

Interest is now centered on the probable effect of the war, on the truck industry. The general opinion is certainly optimistic. The question is, Will the American makers sufficiently forecast the future to become convinced, and be ready for the excess demand, when deliveries must be made?

*Will Makers
Be Ready?*

WHY WE SHOULD BE OPTIMISTIC

These figures show roughly the world's business. Practically all of these vast exports have now been cut off, leaving the United States to compete with England in developing and supplying as much as our business ability makes possible.

France's Exports to South America - - - - - \$ 17,000,000
Germany's Exports to South America - - - - - 177,100,000

The Exports of the United Kingdom of \$275,400,000, are not counted, as in large part they still continue.

Foreign trade of the seven countries at war, not counting trade with the United States - - - - - \$6,500,000,000
Proportion of this to Asia, Africa, and South America, 2,700,000,000

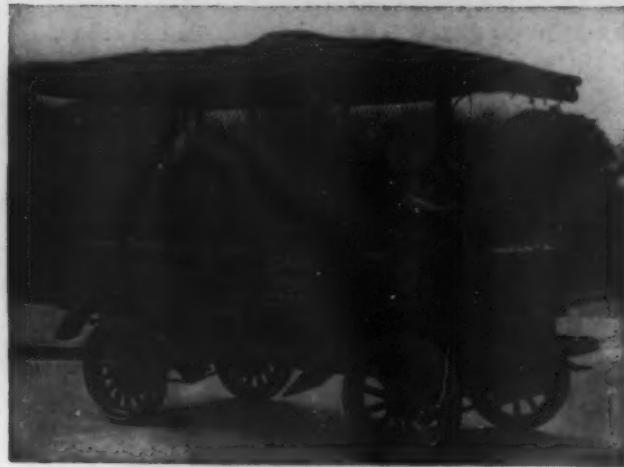
All manufacturers with sufficient capital would grasp this opportunity greedily, if they were sure of its reality. Desiring further proof, they hesitate to make the necessary investments, which must be made many months before the actual demand culminates.

The necessity, therefore, for a get-together convention to discuss these matters from all angles, to get each others' opinions, and to formulate plans, was never more paramount than at present.

Such an opportunity is now offered by the Get-Together Convention on Oct. 7th, 8th, 9th and 10th, at Detroit. Not

*Don't Fail
To Be
Represented* only the cultivation of new fields, but ways and means for better sales and service at home are to be discussed, and must prove helpful to all.

A representative attendance is now assured, as all the leading organizations of commercial car interests are co-operating. Don't fail to be represented.



American merchants
Unite in praising
The capacity
Of the *Autocar* for
Continuous service.
Ask any owner the
Reason.

Delivery improved,
Economy secured,
Lower delivery costs,
Increased delivery area,
Valuable customers gained,
Efficient in all seasons.
Result—
Yearly profits increased.

Vouched for by
Enterprising and
Hard-headed
Individuals and
Concerns who are
Looking for
Efficient
Service.

"Used in Every Line of Business"

1700 owners, a large number of whom
have from 10 to 270 *Autocars* each

THE AUTOCAR COMPANY, ARDMORE, PA.
Established 1897

Motor Delivery Car Specialists

The Commercial Car Journal

VOLUME VIII

PHILADELPHIA, SEPTEMBER 15, 1914

NUMBER 1

"GET-TOGETHER" CONVENTION FOR TRUCK INTERESTS; DETROIT, OCTOBER 7-8-9-10

Arrangements are almost completed for a big "get-together" convention of all truck interests at the Cadillac Hotel, Detroit, on October 7-8-9-10, by the Motor Truck Club of America, assisted by the Society of Automobile Engineers, the Electric Vehicle Association and other interested organizations.

The meeting will be held in the convention hall, which will seat about one thousand people. The first day will be manufacturers', at which time all will get together by themselves and talk over manufacturers' interests.

The second day will be dealers', and they will get together by themselves and formulate as definite plans as possible for the improvement and furthering of sales and service plans, and on the third and fourth days the general sessions will be held, at which not only manufacturers and dealers, but owners, will be present, and the suggestions and tentative plans of the special meetings will be presented and definite plans settled upon, if possible.

It is believed that very important results will follow such a get-together convention, and now that there are no truck shows, this will be the only time during the year when manufacturers and dealers can meet each other, and have time to talk over mutual interests.

The various chairmen and committees have been appointed, and their work outlined as follows:

Committees, Chairmen, Headquarters, and Work for The "Get-Together" Convention

EXECUTIVE COMMITTEE, George M. Duck, president Motor Truck Club of America, Chairman; Frank W. Smith, president Electric Vehicle Association of America; Coker F. Clarkson, Society of Automobile Engineers; E. S. Foljambe, Commercial Car Journal and Automobile Trade Journal, Philadelphia; C. W. Blackman, of Commercial Vehicle; Walter Wardrup, of Power Wagon; and W. W. Scott, of the Automobile Journal Publishing Company; headquarters to be at New York City until convention date.

GENERAL ARRANGEMENT COMMITTEE to consist of at least three members, to take charge of the preparation in relation to (a) Convention Hall, (b) Headquarters, (c) Accommodation and Reception, Entertainment, Transportation and Publicity through subcommittees. Reports to Executive Committee; Chairman, R. B. Spencer, Denby Motor Truck Company, headquarters at Detroit.

FINANCE COMMITTEE to consist of three members who will provide for extraordinary expenses not included in the proposition of the Detroit Bureau of Commerce through Bureau of Conventions and Tours. Chairman, M. L. Pulcher, Federal Motor Truck Company, headquarters at Detroit. Reports to the Executive Committee.

PROGRAM COMMITTEE to consist of at least three members, who will provide the speakers and papers, arrange for the printing of papers and correspondence thereto. Arrange for the reporting of the meeting and the printing of this report for distribution. Chairman, George H. Duck, with headquarters in New York City until date of Convention; reports to Executive Committee.

PUBLICITY COMMITTEE to consist of at least three members, who will take charge of advertising, printed notices, posters, trolley and other railroad cars, circular letters to capital manufacturers, dealers and owners, garages, supply houses, etc. Reports to Executive Committee and General Arrangement Committee.

TRANSPORTATION COMMITTEE to consist of at least three members, who will arrange for rates, routes and all other details and

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information in relation to Convention and economic methods of reaching Detroit for the Convention and for return. Reports to General Arrangements Committee and Executive Committee. Chairman, J. L. Barrett, headquarters at Detroit.

RECEPTION COMMITTEE to consist of at least five members, who will take charge of Convention headquarters, information bureau, registration of all attending and the posting daily of bulletins giving names and addresses, etc. Reports to General Arrangements Committee and Executive Committee, headquarters at Detroit.

ENTERTAINMENT COMMITTEE to consist of at least three members, who will take charge of the banquet, if such is decided upon.

GASOLINE TRUCK MANUFACTURERS' COMMITTEE to consist of at least three members, who will assist in developing interest among the manufacturers, secure information for the Program Committee, including figures if desired and in all other ways bring out their trade interests in affairs. Reports to Program Committee, headquarters at Detroit.

ELECTRIC TRUCK MANUFACTURERS' COMMITTEE to consist of at least three members, who will assist in developing interest among manufacturers, secure information for the Program Committee, including the securing of photos, if desired, and in all ways "boost" their particular interest. Reports to Program Committee. Chairman, J. M. Lansden, headquarters at Detroit.

DEALERS' COMMITTEE to consist of at least three members, who will assist in developing interest in the Convention among the dealers—local dealers particularly—to assist the Program Committee in procuring speakers and inducing general discussion during "Dealers' Day," October 8th. Reports to Program Committee. Chairman, John H. Thompson, headquarters at Detroit.

OWNERS' COMMITTEE to consist of at least three members, who will assist in developing the interest in the Convention among the owners, to assist the Program Committee in securing the cooperation of owners in the preparation of papers, questions, etc. The influence and attitude of the owner toward merchandising

and maintenance should be a predominant factor. Reports to Program Committee.

EXECUTIVE SECRETARY to be J. Lee Barrett, who ex-officio becomes a member of every committee and from whose office the committees should operate. Through the Bureau of Conventions and Tours, all correspondence to manufacturers, dealers and owners may be handled and other details pertaining to the Convention will be taken care of as directed.

ELECTRIC TRUCK POPULAR

The electric motor truck has become popular in London during the war because this type of vehicle is not subject to seizure for army services. When the war broke out, every gasoline truck was seized from the business houses, manufacturers and dealers, and as a result, they turned to electric motor trucks and the available stock was quickly bought up. However, there are very few electric trucks in England, and certain American manufacturers have recently begun a campaign to market electric vehicles there; the war has come at an opportune time for them. Although the British army has not secured any electric trucks, it has sent a number of gas-electric trucks to the front. The gas-electric truck has the advantage over the gasoline truck in that its electric gen-

erating plant can be utilized for operating searchlights, lathes and drills, etc., while it has the same unlimited radius of the gasoline truck.

S. A. E. CALLS OFF EUROPEAN TRIP

The European trip, which the S. A. E. planned to take this fall, has been postponed indefinitely, owing to the war. This decision was reached at a recent meeting of the council of the society in New York City.

E. V. A. FORMS NEW YORK SECTION

Electric Vehicle Association of America has formed a New York section with two hundred members. Harvey Robinson, secretary of the national organization, has been elected chairman of the New York division; David C. Fenner, vice-chairman and David F. Tobias, secretary. The Executive Committee consists of the above-named officers and W. C. Andrews, T. Commerford Martin, S. W. Andrews, Nathaniel Platt, F. F. Sampson, F. W. Smith, S. G. Thompson, Chas. A. Ward and C. Y. Kenworthy.

REPUBLIC WINS RELIABILITY RUN

In a reliability run of 203 miles, held under A. A. A. sanction, at Los Angeles, Cal., a Republic truck, built by the Alma Motor Truck Company, Alma, Mich., won with a perfect score in a field of twenty-four. The run was made without mechanical adjustment and an examination after the run by the technical committee showed the truck to be in perfect condition. It used \$0.06 engine distillate, averaging over 10 miles to the gallon and 18 m.p.h. Route was through mountain and desert sand, over the worst roads in California, giving the truck a very difficult test.

Dart Manufacturing Company, Waterloo, Ia., is being wound up by its officers, and a new company to be known as the Dart Motor Truck Company has been organized by the same parties, and will purchase a portion of the machinery and merchandise of the old company. The organizers of the company are C. W. Hellen, C. G. Wolf and William Galloway, who were all prominent in the old company. It is stated that the creditors of the old company will be paid in full.

Motor Truck Club of California, 207 Wright & Callender Building, Los Angeles, Cal., elected the following officers: W. T. Wood, president; G. E. Tracy, vice-president; H. C. Inglis, treasurer; W. W. Hite, secretary, and members of the board of directors, T. N. Sinsabaugh, N. N. Priver, T. F. Whalen, J. L. Pike and H. S. Welsbaum.

General Motors Truck Company, Pontiac, Mich., announces that the sales of trucks for the period since January 4, 1914, exceeded those of the corresponding period of the previous year by 44 per cent. The number of dealers handling the G. M. C. is 232 per cent. greater than on January 4, 1914.

Berry-Berg Coal Company, St. Louis, Mo., has recently bought a Knox-Martin tractor which will be used for pulling two trailers loaded with 15 tons of coal.

Factory Additions and New Incorporations

Auto Tractor Company, of Niles, Mich., is about ready to do business at its new plant, the new machinery having been installed. A. L. Lott is factory manager.

Willard Storage Battery Company, Cleveland, Ohio, will shortly commence erecting a large plant, 200x135 ft. one-story, on E. 131st Street, at a cost of \$35,000.

Livingston Radiator Manufacturing Company has leased a five-story and basement building at Amsterdam Avenue and 75th Street, New York City, for a term of twenty-one years.

Lee Tire & Rubber Company, Conshohocken, Pa., is now running a day and night shift in order to keep up with the demand for tires. Plans are under way to increase the capacity of the plant 100 per cent.

Continental Motor Manufacturing Company, Detroit, Mich., is erecting additional buildings to its testing and machine shops. Hereafter the company will make all the stampings used in the various models of its motor.

Modern Auto Parts Company, of Chicago, Ill., has been incorporated with a capitalization of \$20,000 to do a manufacturing business in automobile parts, gasoline engines and parts thereof by E. S. Carr, W. R. Fetzer and E. A. Biggs.

Keaton Tire & Rubber Company, of New York City, manufacturer of special brand tires and tubes, has recently been taken over in its entirety by the Combination Rubber Manufacturing Company, who will continue the manufacture of special brand tires and tubes. H. A. Forbes, formerly general manager of the Keaton Tire & Rubber Company is now connected with the Combination Company in the capacity of manager of its Tire Department, and Franck C. Braden is now identified with the company as sales manager of the Tire Department.

Sparks-Withington Company, Jackson, Mich., has just completed a structural steel and concrete building which gives 50,000 sq. ft. additional floor space. This addition is to be used exclusively for the nickel plating and shipping departments.

Studebaker Corporation, of Detroit, Mich., through A. R. Erskine, makes the announcement that the net profits of the company for the first six months of the present year are \$3,027,844.48; reduction in liabilities \$2,216,317.06; cash balance, \$3,228,654.29.

Safety-First Motor Car Company, of Kalamazoo, Mich., capitalized at \$10,000, has filed articles of association with the Secretary of State at Lansing, Mich., and is making plans for the manufacture of motor cars and trucks on a patent secured by Frank Dentier, of Vicksburg, Mich. The officers of the new company are: F. A. Young, president; W. P. Haines, vice-president; Geo. J. Haines, secretary and treasurer.

Mercer Davis, a farmer of Gridley, Ill., expects a Reo truck, which he recently purchased, chassis price of which was \$1650, to pay for itself in hauling 12,000 fence posts a distance of 14 miles.

Jackson & Newton Lumber Company, of Boston, has recently placed an order for five Velie trucks, for transporting sash, doors, blinds and lumber from the manufacturing plant to delivery points covering a radius of from 15 to 20 miles. This makes a total of eight Velie trucks which the Jackson & Newton Company has purchased during the last two years.

Consul Rufus Fleming, Edinburgh, reports that large mercantile houses in the vicinity of Edinburgh, Scotland, are gradually superseding light horse-drawn vehicles by motor cars. There are a few American and French cars, although the greater majority are of English manufacture. There are about 1600 commercial cars in the vicinity of Edinburgh at the present time; about two-thirds of these being light delivery vans.

THE COMMERCIAL CAR JOURNAL

Personal Items

J. M. Opper has been appointed special representative for the Studebaker Corporation in the central West.

Edward A. Haybell has been appointed special South Atlantic representative for the Studebaker Corporation, Detroit, Mich.

John Dietrick is now in charge of the engineering department of the Denby Motor Truck Company, of Detroit, Mich.

Fred K. Park has joined the sales department of the Velie Motor Car Company, of Moline, in the commercial car department.

L. A. Tilley has been appointed special representative for the Studebaker Corporation, Detroit, Mich., in the Southwestern territory.

B. O. Willebrands has been appointed special representative for the Studebaker Corporation, Detroit, Mich., in the Pacific coast territory.

C. C. Day, formerly branch manager of the International Motor Company, of Baltimore, Md., has joined the sales force of the White Company.

Murray M. Harris, formerly vice-president of the Pacific Motor Coach Company, of Los Angeles, Cal., has been elected president and general manager.

D. R. Murrel has been promoted to the position of district representative of the Studebaker Corporation, Detroit, Mich., with headquarters at Norfolk, Va.

James H. Van Dorn, president of the Van Dorn & Dutton Company, 2719 E. 79th Street, S. W., Cleveland, Ohio, manufacturer of gears, died on August 29th.

Frank G. Mautho, formerly manager of Newark, has become associated with The Batavia Rubber Company, of New York City, as special representative in the State of New Jersey.

W. T. Bush has been appointed sales manager of the Studebaker Corporation of Canada, Ltd., at Walkerville. He succeeds C. H. Snock who has resigned to enter another line of work.

Martial F. Lebon, who has been with the Thos. B. Jeffery Company, in charge of the wholesale end of the Boston branch since 1908, has been appointed district representative for New York City.

H. E. Kelly, for four years state distributor of the Studebaker line in Oklahoma, has organized the Kelly Motor Company, in Oklahoma City, for the distribution of the Studebaker line, that city.

Ralph P. Dowse, formerly traveling representative of the Goodyear Tire & Rubber Company, throughout Michigan, has joined the forces of the Kelly-Springfield Company as territorial representative.

Fred Harrington, formerly connected with the Firestone Tire & Rubber Company's Philadelphia branch, has become manager of the Detroit agency of the same company, which has been made a direct factory branch.

E. St. Elmo Lewis, for ten years advertising manager of the Burroughs Adding Machine Company, of Detroit, Mich., has become vice-president and general manager of the Art Metal Construction Company, of Jamestown, N. Y.

C. Louis Allen, formerly automobile sales manager of the Pyrene Manufacturing Company, New York City, maker of the Pyrene Hand Fire Extinguisher, has been promoted to the position of general sales manager.

Pierre Schon, who was at one time manager of the International Motor Kansas City Company, and Southwestern representative of the same company until recently, has been appointed service manager for the General Motor Truck Company, Pontiac, Mich.

N. H. Motsinger, Jr., is the latest addition to the Rayfield Carburetor organization. He formerly represented the Schebler Company in Chicago, being Chicago Branch Manager for a number of years. Mr. Motsinger will serve the Findeisen & Kropf Manufacturing Company in the capacity of factory representative.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa. and Newark, N. J., has made several changes among its officers and directors. J. J. Hanauer has been elected a director to succeed Paul M. Warburg, banker and member of the Federal Reserve Board; T. P. Gaylord has been elected to succeed H. D. Shute, who has become treasurer of the company succeeding T. W. Simeon. The latter resigned to become secretary and treasurer of the Union Switch & Signal Company.

Thomas E. Hughes, manager of the Philadelphia office of the Standard Underground Cable Company, of Pittsburgh, Pa., died at his home in Atlantic City, N. J., on August 27th. Mr. Hughes has represented the Standard Underground Cable Company throughout its Atlantic coast territory for a number of years, and was manager of the Eastern and Southeastern Branch Office Sales Department in Philadelphia for seventeen years. During the period of his association with the company, he has seen the number of its branch offices increase more than fivefold, and the annual business done in the Philadelphia office territory during recent years, grow to a figure equal to that of the company at large seventeen years ago. He has been a well-known figure in the electrical field from its commercial inception. For a number of years he was secretary and director of the Manufacturers' Club, of Philadelphia.

Financial and Legal

Piggs Motor Truck Company, Racine, Wis., has filed a petition in the United States Court asking to be adjudged bankrupt. Liabilities are \$27,121.11, with no assets.

International Harvester Company has been ordered to dissolve by the United States Circuit Court of St. Paul, Minn., declaring that it was a monopoly in restraint of trade. The International Harvester Company is to make an appeal to the United States Supreme Court. The court held that the Sherman law was violated in 1902 when the five original companies combined and eliminated competition among themselves.

Adams Brothers Company, Findlay, Ohio, has \$25,000 worth of stock to sell. Merchants of Findlay are endeavoring to sell this in order to put the business on a better financial standing. If the above mentioned amount of stock is sold, a well-known truck manufacturer will place an additional \$10,000 in the company, it is reported. The company went into the hands of a receiver on account of the flood and strike a year ago.

United States Motor Truck Company, of Covington, Ky., with a capital of \$300,000, absorbed a company of a similar name which was located in Cincinnati for five years. Among the officers and directors of the new company are some of the largest and most influential business men and bankers of Cincinnati and Covington. The new plant, which is in Covington, Ky., directly across the river from Cincinnati, Ohio, is one of the most modern and up to date for motor truck building in the United States.

Splitdorf Electrical Company, of Newark, N. J., has brought suit against the Eisemann Magneto Company, of New York, in the United States District Court for the Southern District of New York, alleging infringement of its patent No. 1,102,385, issued on July 7, 1914, to Ernest W. Brackett. The type of magneto mounting used by the Eisemann Company, according to the complaint filed, is an infringement of the patent granted to Brackett and assigned to the Splitdorf concern. The usual injunction, damages and costs are asked.

New Trucks

Signal Motor Truck Company, of Detroit, Mich., is ready to deliver a new one-ton Timken-David-Brown worm-drive model.

Stewart Motor Corporation, Buffalo, N. Y., is offering its new model Stewart 1500-lb. truck at \$1500, which is a reduction of \$150 from the cost of the previous model.

Wagenhals Motor Company, of Detroit, Mich., is soon to put on the market a smaller edition of delivery wagon. The new vehicle will have a carrying capacity of from 400 to 500 lbs. and will sell at \$350.

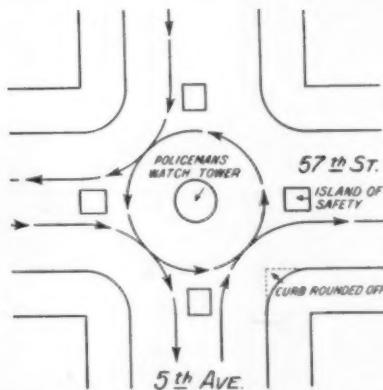
American Electric Car Company, of Saginaw, Mich., has recently designed an electric truck particularly adapted to the quick and economical delivery of lumber and finished products. The new truck, made for the Bliss & Van Auken Lumber Company, of the same city, is showing a substantial saving in delivery cost over the horse-drawn wagons previously used.

Dunlap Electric Truck Company, of Columbus, Ohio, has recently been organized with a capital stock of \$20,000 for the purpose of manufacturing and selling a 750-lb. electric delivery wagon. The incorporators are: T. C. Dunlap, Geo. R. Hedges, Stewart A. Hoover, Herman R. Tinley and M. E. Heasley. The truck is designed to compete with smaller gasoline delivery wagons, and is equipped with F. & H. wire wheels and solid tires; it will sell in the neighborhood of \$1000.

ROTARY SYSTEM OF HANDLING STREET TRAFFIC BEING TRIED IN NEW YORK CITY

New York City is to have a new plan of traffic regulation tried out at some of its congested crossings. The Police Department's first experiment with the rotary system will be put in operation at Fifty-seventh Street and Fifth Avenue at the instigation of the Citizens' Street Traffic Committee. The system was planned by William Phelps Eno, the traffic expert, and the scheme is to make the traffic at certain crossings move rotary fashion, as is now done at Columbus Circle, but, of course, on a smaller scale and within a smaller area.

The Eno plan calls for five isles of safety, one in the exact intersection of the two thoroughfares and the other four placed in the center of the streets radiating from the central isle of safety. These four will be stationed on a line with that used by pedestrians in crossing the streets. The curbs at the four corners will be rounded off more than at present in order to permit a longer radius, which is to be approximately 43 ft. The traffic is to move continuously in a general circular direction, bearing to the left, the cross-town traffic to weave into the up and downtown traffic, as is done at the intersecting avenues of Columbus Circle.



Plan of Traffic Movement for New York Street Intersections

Thus, an automobile going south on Fifth Avenue, upon reaching Fifty-seventh Street and desiring to proceed south, will at first bear to the right until a circular orbit is obtained, swinging across Fifty-seventh Street in an arc of a circle and then bearing to the right again to continue south on to Fifth Avenue. In the meantime, vehicles coming east through Fifty-seventh Street will bear to the right and swing into the traffic circle which has the isle of safety for its center, then bearing to the right to continue east on Fifty-seventh Street after cutting across on Fifth Avenue. In the center of the isle of safety is to be a crow's nest, where a traffic policeman will be stationed, and from which he will direct traffic. A block system of signals also may be tried out. The Traffic Committee wishes to try out this plan just as much as it welcomes the experimental introduction of moving traffic simultaneously in a number of blocks according to the block system regulating traffic.

Last July members of the Citizens' Street Traffic Committee made a tour about Manhattan in two motor buses for the purpose of studying the matter of improving traffic conditions. A luncheon was held at the Automobile Club of America, following which Inspector Meyers, head of the Police Traffic Squad; Lieutenant Snyder, of the Traffic Squad; William Phelps Eno, Robert Grier Cooke, First Deputy Commissioner McClintock, Deputy Fire Commissioner W. Holden Weeks, Street Cleaning Commissioner Featherstone and others, made the tour of inspection as guests of the Citizens' Street Traffic Committee. Mr. Eno is responsible for the traffic regulation put into force at Columbus Circle a number of years ago, and it is believed that the new plan will result satisfactorily and that it will be adopted by the city at most of the congested crossings.

THE ELECTRICAL EXPOSITION

The annual electrical show held in the Grand Central Palace, New York City will continue day and night from October 7 to 17th. Among the surprises will be a new low-priced delivery wagon within the reach of every merchant in the country and backed by a well-known concern. The company and the new car is to be kept secret until the opening day of the show.

Unusual care and attention are being exercised by the managers of this show to make this year's the most comprehensive as well as the most attractive of any ever held, and the decorations and musical programs will be especially elaborate.

All the prominent manufacturers of electric vehicles will have on show the latest models of both commercial and pleasure types. These will be demonstrated on a circular track.

MOTOR-DRIVEN STREET SPRINKLER

Reports on the work of motor-driven street sprinkling apparatus discloses a remarkable story of economy over horses engaged in the same service. Hibbing, Minn., has a KisselKar sprinkling and flushing outfit which the city clerk states is doing work formerly requiring twenty-two horse teams. The truck, which is kept running 24 hours with three-crew shifts, costs \$27 a day, including maintenance, operation and wages, as against \$121 a day for the horse-drawn vehicles replaced by it. It has a record of covering seventeen blocks in 21 minutes, including time for two refillings.

Beardsley Electric Company, 1250-60 W. Seventh Street, Los Angeles, Cal., has decided to manufacture a half-ton and a one-ton chassis, in addition to the line of pleasure cars which it now manufactures. The close association of the Moreland Motor Truck Company and the Beardsley Electric Company makes it possible for both companies to derive a benefit in the manufacture and sale of the electric trucks. Volney S. Beardsley and Watt L. Moreland have closed a contract with the officials of the Panama-California Exposition to furnish an electric ambulance and a light electric truck, to be used exclusively on the exposition grounds during 1915.

New Agencies and Changes

Keeney Garage, 259 Smith Street, Hartford, Conn., has taken the agency for the Selden truck.

Harper, D. Walter, 220 Brandywine Street, Philadelphia, Pa., has taken the agency for the Flint motor wagon.

Commercial Car Sales Company, of Chicago, Ill., has been changed to the Auto Sales & Service Company of Illinois.

Hanson, Thorwald, distributor for the Cole cars and Selden trucks, has removed from 36 Central Street to 711 Main Street, Worcester, Mass.

Smith, E. R., & Company, Waukon, Okla., have taken the agency for the Studebaker, and will enlarge their garage to display a complete line.

Wagenhals Motor Company, 3908 Washington Avenue, St. Louis, Mo., has the agency for the Wagenhals motor delivery wagon. William D. McCain is manager.

Devis-Skeel Company, of Cleveland, Ohio, which controls the distribution of Studebakers in that district, has leased property at 2020-24 Euclid Avenue, and will erect a four-story structure for use as sales and service station.

Koehler, H. J., Company of New York, has placed the following agencies for its one-ton truck: S. E. Kinney, Austin, Tex.; W. T. Keaton, Dallas, Tex.; Harry Seales, Belvidere, N. J., and C. H. Dean, San Antonio, Tex.

Wilcox, Herr & Chapman Company, of Indianapolis, Ind., has taken over the sale of White trucks and pleasure cars, formerly handled by the Indiana branch of the White Company in charge of R. W. Chapman. Messrs. Herr and Wilcox formerly handled the National.

Dorris Company, Atlanta, Ga. McCarthy, D. E., and J. K., have purchased a half-interest in the automobile and truck garage, and will establish a southern agency and service station for the Maccar Truck Company. The agency will be run in conjunction with the Dorris Garage.

On the New Orleans water front, six electric baggage trucks are now in use. In a test recently the trucks handled 620 sacks of rice an hour, unloading from a vessel.

Swinehart Tire & Rubber Company, of Akron, Ohio, has declared a quarterly dividend of $1\frac{1}{2}$ per cent. a month ahead of time. It has discontinued the policy of paying the dividend a month after it is due.

W. H. Twiss has commenced operating an auto stage between Centralia and Chehalis, Wash. The stage, a twenty-four-passenger car, operates in connection with those out of Chehalis into central Lewis County.

Consul General Michael J. Hendrick, Christiania, Norway, reports that Norway is gradually increasing the use of motor delivery wagons, and that it will be only a question of time before they largely take the place of the horse-drawn vehicle. There are now about one hundred and fifty motor delivery wagons, including fourteen motor trucks, now in use out of a total of about seven hundred motor cars in Christiania and one thousand one hundred in all Norway.

E. V. A. HOLDS MEETING OF BOARD OF DIRECTORS



SPECIAL meeting of the Board of Directors of the Electric Vehicle Association of America, was held in the office of President Smith, August 25th, at 3.30 p.m.

Although not up to last month's record, thirty-eight applications for membership have been received. These, being accepted, give a total membership of 871.

Petitions have been received for sections in Denver, Colo., and St. Louis, Mo. These petitions were approved and accepted.

The constitution and by-laws are being revised and a draft with the suggestions will be sent to the directors and active members for consideration at a meeting to be held in September, so that the constitution and by-laws, as finally adopted, may be effective at the coming convention.

The Traffic Regulation Committee of the Chicago Section has been trying to effect a meeting of all similar committees in allied associations, for the purpose of deciding upon the best remedy for the automobile parking situation.

As the first organization meeting of the New York Section, Frank W. Smith, president of the national association, was elected temporary chairman, and David F. Tobias temporary secretary. Mr. Smith appointed a nominating committee of P. D. Wagoner, F. F. Sampson, S. C. Harris, E. L. Howland and H. R. Leisk.

P. D. Wagoner presented the report of the nominating committee, which was duly seconded and the temporary secretary was instructed to cast the ballot of one vote for the ticket as given herewith:

Harvey Robinson, chairman; D. C. Fenner, vice-chairman; David F. Tobias, secretary.

Executive Committee; W. C. Andrews, T. C. Martin, S. W. Menefee, Nathaniel Platt, F. F. Sampson, Frank W. Smith, S. G. Thompson, Charles A. Ward.

Mr. Robinson, the chairman for the ensuing year, then took the chair and made a few brief remarks expressing his appreciation of the honor and the desire for enthusiastic and constructive effort toward making the New York Section not only the largest in numbers, which it is, but the greatest by the results of its work. The membership of the New York Section is over two hundred.

At the organization meeting of the Detroit Section on July 17th, J. W. Brennan was elected chairman; W. J. Gordon, vice-chairman; Hal C. Smith, secretary. The executive committee consists of Miss Sarah M. Sheridan, C. W. Terry, Hal C. Smith, H. C. Downing, W. H. Conant, W. J. Gordon and J. C. Ayers.

The motion picture film committee has received a number of requests for the use of the motion picture film, "Selling Electric Vehicles," and arrangements have been made for its display at the Vermont Electric Association on September 17th, and the Kansas Gas and Electric Company on October 1st. It is also understood that the National Electric Light Association will purchase one set of these films for use by their association.

The general office of the association has been moved from the temporary quarters, used from February 1st to August 15th, on the first floor of the United Engineering Societies Building, 29 West 39th Street, to the seventh floor of the same building, where two rooms formerly occupied by the National Electric Light Association have been secured. The new offices are well located, permitting excellent arrangement and making for efficiency.

Philadelphia Convention

A highly successful meeting of the General Convention Committee of the Philadelphia Convention, to be held Monday, Tuesday and Wednesday, October 19th, 20th and 21st at the Hotel Bellevue-Stratford, was held in the Philadelphia Electric Company's library on August 19th. Chairman J. B. McCall, president of the Philadelphia Electric Company, presided. There was an unusually complete attendance, and from the business transacted, it is safe to say that the Fifth Annual Convention gives unmistakable promise of being not only the biggest, but the most successful in every way that the association has ever had.

Information regarding the Philadelphia Convention may be had upon application to either R. Louis Lloyd, Philadelphia Electric Company, 1000 Chestnut Street, Philadelphia, Pa., or A. Jackson Marshall, executive secretary, Electric Vehicle Association of America, 29 West 39th Street, New York City.

The tentative papers program to date is

No.	Author
1. President's Address.....	Frank W. Smith
2. Executive Secretary.....	A. Jackson Marshall
3. Treasurer.....	Day Baker
4. Constitution and By-Laws Committee.....	Frank W. Frueauf
5. Committee on Membership and Formation of Sections.....	Joseph F. Becker
6. Committee on Operating Records.....	W. P. Kennedy
7. Garage and Rates Committee.....	John F. Gilchrist
8. Insurance Committee.....	Day Baker
9. Papers Committee.....	Stephen G. Thompson
10. Committee on Legislation.....	P. D. Wagoner
11. Committee on Educational Courses.....	M. W. Albrecht
12. Standardization Committee.....	E. R. Whitney
13. Traffic Committee.....	D. C. Fenner
14. Good Roads Committee.....	C. E. W. M. Bailey
15. Committee on Central Station Co-operation.....	W. W. Freeman
16. Committee on Parcel Post Delivery.....	James H. McGraw
17. Moving Picture Film Committee.....	W. C. Andrews

Section Reports: (What the Sections Are Doing)

18. New England.....	J. A. Hunnewell
Chicago.....	W. J. McDowell
Cincinnati.....	George Behlen
Philadelphia.....	R. Louis Lloyd
San Francisco.....	Stanley V. Walton
Washington.....	E. S. Marlow
Detroit.....	J. W. Brennan
Los Angeles.....	J. Harry Pieper
Pittsburgh.....	W. A. Donkin
New York.....	Harvey Robinson
Cleveland.....	(to be named)
Toronto.....	(to be named)
Denver.....	(to be named)
St. Louis.....	(to be named)

Papers

19. Progress of the Electric Vehicle.....	James H. McGraw
20. Electric Vehicle Performance.....	Robert B. Grove
21. Symposium—The Design and Performance of Electric Vehicle Motors.....	H. S. Baldwin
22. Characteristic Curves of Motor Design.....	R. B. Treat
23. Unusual Applications of Electric Trucks.....	F. Nelson Carle
24. European Development of the Electric Vehicle Industry.....	P. D. Wagoner
25. Electric Vehicles in Parcel Post Service.....	W. P. Kennedy

- 26. A Wider Dissemination of Electric Vehicle Information. (To be a talk, not paper. N. E. L. A. Electric Salesmen's Handbook). T. I. Jones
- 27. (Passenger Vehicle Paper. George H. Kelly Title—later) or Mr. Gruenfeldt
- 28. (Passenger Vehicle Paper. Title—later) Louis E. Burr
- 29. (Passenger Vehicle Paper. Title—later) H. H. Deering
- 30. (Passenger Vehicle Paper. Title—later) H. P. Dodge
- 31. Symposium—The Electric Industrial Truck. C. W. Hunt Co.
- 32. Educating the Public to the Field and Use of the Electric Vehicle. F. C. Henderschott
- 33. Electric Fire Apparatus. George S. Walker
- 34. Power Wagon Operation in Central Station Service. W. A. Manwaring
- 35. Electric Vehicle Charging. J. F. Lincoln

N. A. C. C. HOLDS DIRECTORS' MEETING

Conservative optimism on the fall trade in automobiles prevailed at the directors' meeting of the National Automobile Chamber of Commerce, representing ninety-three automobile manufacturers, at the New York headquarters recently. The European war resulted in almost a complete shutdown of the automobile trade during the first two weeks in August, but reports received showed that a reaction has taken place and shipments for the last two weeks were far ahead of the same period last year. It is believed that the trade this fall will be almost up to expectations.

The traffic department figures showed that during August, 1913, the automobile industry shipped 4469 carloads, while last month the shipments were 6870, most of which were made during the last two weeks of the month.

It was decided that the present was an inopportune time for a convention of commercial vehicles manufacturers, and a date for holding one will probably be decided upon for late in the year.

There was a most interesting report from the Patents' Committee relative to the automobile patent situation and also in regard to the proposed changes in the patent laws at Washington.

The directors adopted a resolution expressing their disapproval of various accessory manufacturers having controversies among themselves on patent rights, bringing suits against the makers of motor cars. The resolution is as follows:

WHEREAS, Members of the National Automobile Chamber of Commerce have been annoyed and embarrassed by threats of patent infringement and by patent infringement suits brought against them or against their customers and users of their cars by certain manufacturers of automobile accessories and parts; and

WHEREAS, It is unnecessary for such manufacturers of accessories and parts to bring suits against automobile manufacturers, vendors and users of motor cars in order to assert their rights under their patents, inasmuch as such manufacturers of accessories and parts have ample recourse against the infringing manufacturers of such accessories and parts; therefore, be it

Resolved, That the directors of the National Automobile Chamber of Commerce regard any such suits by accessory and parts manufacturers against motor car manufacturers, vendors or users of motor cars as being unwarranted, unfriendly and against the best interests of the industry; and be it further

Resolved, That the Motor and Accessory Manufacturers' Association be advised of the attitude of this Chamber on this subject with the end in view of giving all manufacturers of accessories and parts due notice of the attitude and feeling of the National Automobile Chamber of Commerce.

Male Motor Truck Company, of Indianapolis, Ind., has reduced its capital stock from \$1,000,000 to \$200,000.

THE USE OF TRAILERS WITH MOTOR TRUCKS

INQUIRIES addressed to members of the National Automobile Chamber of Commerce regarding the desirability and economy of using trailers with standard motor trucks have been answered in detail by twelve companies.

The preponderance of opinion is decidedly against the practice except under very favorable conditions, such as level, smooth, hard roads, slow speed and proper handling. Given such conditions, the standard truck may be used successfully for hauling trailers, but under no circumstances should a trailer be used without the consent of the manufacturer, as the guarantee does not contemplate such use. Under any other conditions the practice is of very doubtful economy; therefore truck manufacturers do not encourage the use of trailers unless they examine the field of operation and know that their trucks can handle the work with trailers under the conditions.

Special Tractors Required

The standard truck is designed for a definite load and speed and as a rule is not rugged enough for this service, which is most likely to be done outside of cities, where roads are poor and grades steep. For use as a tractor, the truck should have a powerful engine, strong construction throughout, especially liberal bearing surfaces and a clutch that will engage and start the load without a jerk. The horsepower developed and the gear ratio should be proportionate to the weight of the vehicle and trailer with loads.

Successful employment of trailers except under unusually favorable conditions calls for the special construction of tractor trucks and of trailers designed for use with them. Such a tractor should have at least five or six possible speed changes, if gasoline economy is to be maintained. An electric tractor requires increased battery capacity.

Types of Trailers

Wagons and drays built for use with horses have been used as trailers with motor trucks with some success, but they are likely to shake to pieces soon unless the speed is reduced so much that there is little if any economy. As they are built for a speed of about 4 m.p.h., and road shocks are increased as the square of the speed; they cannot long resist the jolts and racking over rough roads at 8 to 10 m.p.h. Moreover, the bearings cannot be lubricated properly at these higher speeds and they quickly wear out. To obtain durability and efficiency, trailers must be built with the same type of bearings and sturdy construction as the tractors, although the trailer does not need to be built quite so heavy as the truck.

There is believed to be a field for hauling with trailers and that motor truck dealers might perhaps handle trailers as a means of stimulating business, provided their use was approved by the makers of the trucks. At least four wagon companies have undertaken the manufacture of special trailers for motor trucks. These are the Troy Wagon Works, Shadbolt Manufactur-

ing Company, Watson Wagon Works and Buffalo-Pitts Company.

The public demands a combination of truck and trailer that will haul from 10 to 12 tons. A good four-wheel trailer to carry 5 tons and weighs about half as much as a five-ton truck; that is, 2 tons or more. The trailer should be as light as possible, however, consistent with the load to be carried, the maximum speed to be attained, and rough road conditions. Although the weight and capacity of the trailer should be dependent upon the relation of the engine power to the weight, speed and capacity of the truck, the trailer should not have a load capacity exceeding that of the truck itself.

State Laws Affect Trailers

Whether two-wheel or four-wheel trailers should be used is determined by the particular nature of the work to be done. Long timbers, sections of pipe, I-beams, etc., can best be handled with the two-wheel trailer, the front end of the load being carried on the rear end of the truck, with a suitable support having universal action. The four-wheel trailer is preferable for bulk material and miscellaneous goods, for two reasons: first, the object of using a trailer is to secure economy, and, as the four-wheel trailer has inherent stability, it can be left for loading and unloading while the truck picks up and hauls another trailer, thereby cutting down the idle time of the truck; and second, the two-wheel trailer and truck are rated as a single six-wheel vehicle by the highway authorities in the states which have passed laws or made regulations limiting the gross weight of vehicles using the public highways. In Massachusetts, New York and Maryland, the permissible maximum weight of vehicles and load is 28,000 lbs.; in New Jersey, it is 26,000 lbs. and in Pennsylvania, 24,000 lbs. Consequently, a combination of truck and two-wheel trailer weighing only 10,000 lbs empty, could not carry a total load of more than 9 tons in the first three states named, nor more than 8 tons in New Jersey, and 7 in Pennsylvania. A four-wheel trailer, however, probably would have to be considered a separate vehicle.

MOTOR TRUCK CLUB ADOPTS STANDARD REPAIR FORM FOR GASOLINE TRUCKS

In the August issue of its *Bulletin*, the Technical Committee of the Motor Truck Club of America announced the first of the "Standards of Practice" to be adopted by this club. The form described is intended to cover gasoline motor trucks exclusively and at a very early date, the form covering electric commercial vehicles will be illustrated and described.

There is so much trouble continually arising between the owner of the motor truck and the agent or garagemen undertaking repairs that a uniform Standard of Practice is very desirable, and in drawing up the standard form the Technical Committee had in mind something which would dovetail into existing bookkeeping method; and while there is no intention of indicating in every case just what the repair or overhaul work will amount to in advance, it does indicate exactly what

work the customer desires having looked after, and in that way eliminates much of the controversy that would otherwise result.

These Repair Shop Forms are three in number, measuring 6x12 in. Two of them are printed on regular 20-lb. bond stock. One of these (white) is retained by the customer, the second (yellow) is signed

CUSTOMER'S COPY																																																														
Auto _____	Job No. _____																																																													
Customer's Name _____																																																														
Address _____																																																														
Make	Chassis No.	Date																																																												
THE WORK HAS BEEN STARTED AS BELOW ON _____																																																														
FROM YOUR MR. _____																																																														
KINDLY SIGN CONFIRMATION (YELLOW SHEET) AND MAIL BACK TO US IF CORRECT THE CHARGE IS FINAL																																																														
OWNER'S CONFIRMING SIGNATURE																																																														
<input checked="" type="checkbox"/> REPAIR—ITEMS MARKED <input type="checkbox"/> ADJUSTMENT—ITEMS MARKED <input type="checkbox"/> DISASSEMBLE ONLY—ITEMS MARKED <input type="checkbox"/> DO NOT TOUCH—ITEMS MARKED <input type="checkbox"/>																																																														
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by the customer and returned to the individual doing the repair work.

On this form is clearly indicated the source of the order, whether it was given verbally or over the telephone or by telegraph, and in a small square opposite the name of each member or part of the truck may be indicated exactly what is to be done. (X) indicates repair work to be done, (A) means adjustment, (O) indicates that the part is to be disassembled only and (I) indicates that that particular part is not to be touched. In the event of an arrangement entered into whereby the owner is to receive a truck for use during the overhaul or repair work, the same is noted in its proper place on this blank, and the amount to be charged is definitely settled and stated, together with any other special arrangement, so that when the work is finally completed there is very little ground left for controversy.

The form, which is attached to the truck and goes to the repair shop, is printed on a heavy Manila paper, and the reverse side is printed a form, which constitutes an inventory of the various features or attachments which were on the vehicle at the time it was delivered to the repair shop, and which, of course, must tally when the customer is called upon to sign this particular form at the completion of the work.

Allentown, Pa., has recently bought a Maccar truck for use in the water department.

The S. P. C. A. of Baltimore, Md., has installed an electric truck to carry water to thirsty horses. The truck holds six buckets with a total capacity of about 140 gallons. It also carries a cooler for use of the drivers.

Steel and Rubber Markets

Steel Orders Lighter

During August the United States Steel Corporation produced about 1,092,000 tons of steel ingots and 825,000 tons of rolled steel products, while orders booked are estimated at 879,000 tons, or at the rate of 33,800 tons per day. Since the first of September the production of ingots has been at the rate of 66 per cent. of total capacity.

Quotations on September 10th were:

STEEL PRODUCTS PRICES

Bessemer steel, per ton, mill	20 50 a 21 00
Open hearth, per ton, mill	20 50 a 21 00
Sheet bars, per ton	21 50 a 22 00
Steel bars, soft base, half ex. tidewater	1 31 a 1 36

The above prices are at tidewater in carloads and larger lots. For quantities less than 2000 lbs., but not under 1000 lbs., \$2 per ton additional is charged, and less than 1000 lbs., \$8 per ton additional.

SHEETS

The following prices are for 100-bundle lots and over, f.o.b. mill; smaller lots \$2 per ton higher.

Gauge—	Black.	Galvanized.	Gauge—	Black.	Galvanized.
Nos. 22 & 24	1 80	2 50	No. 28	1 95	2 95
Nos. 25 & 26	1 85	2 60	No. 29	2 00	3 10
No. 27	1 90	2 80	No. 30	3 00	3 25

IRON AND STEEL AT PITTSBURGH

Bessemer iron	14 90 a ..
Bessemer steel, f.o.b. Pittsburgh	20 50 a 21 00
Muck bars	28 00 a ..
Skelp, grooved steel	1 20 a 1 25
Skelp, grooved iron	1 55 a ..
Ferro-manganese (80 per cent.), seaboard	25 00 a 100 00
Steel, melting scrap	11 50 a 12 00

Steel bars	1 15 a ..	1 20
Black sheets, 28-gauge	1 90 a ..	
Galvanized sheets, 28-gauge	2 90 a ..	
Blue annealed, 10-gauge	1 35 a ..	1 45
Tank plates, 3/4 and heavier	1 20 a ..	

Rubber Trading Quiet

Since our last writing rubber has taken a decided drop, up-river fine being quoted at 73 a 74c. and coarse at 45 a 47c. The domestic market continues easy, while London advices report a firmer situation.

Quotations on September 10th were:

Up-River—		
Fine	73 a ..	
Coarse	45 a 47	
Island—		
Fine	57 a ..	
Coarse	30 a 32	
Cameta	37 a 40	
Caucho—		
Balls	45 a 47	
Centrais—		
Corinto	45 a ..	
Esmeralda	44 a ..	
Guatemala, slab	38 a 40	
Mexican—		
Scrap	42 a ..	
Strips and scrap	40 a ..	
Guayule	a ..	
DOMESTIC SCRAP RUBBER		
Boots and shoes		
Tires—		
Automobile		
Bicycle, pneumatic		
Wagon and carriage, solid		

Smk, sh't	60 a ..	
Ciudad, b'k	a ..	
Trinidad, b'k	Nominal	
Africans—		
Massal, red	a ..	
Red C'go	Nominal	
B'k C'go	a ..	
Soudan—		
Nigger	Nominal	
Gamba prime	a ..	
East India—		
Smk, sh't	64 a 65	
Ceylon, bis & sheets	58 a 60	
Pale crepe	63 a ..	
Pontianas—		
Prime plantation	9 a ..	
Palembang	9 a ..	

Conventions of Interest to the Trade

National Conventions

October 19-21—at Philadelphia, Pa. Convention of the Philadelphia Section of the Electric Vehicle Association at Hotel Bellevue-Stratford. For further information write to R. L. Lloyd, Chairman of the Philadelphia Section, and A. Jackson Marshall, Executive Secretary of the Association, 29 West Thirty-ninth Street, New York City.

October—Louisville, Ky. National Convention of the Kentucky Bottlers' Association to be held in the Armory. Samuel Leidigh is President of both the State and National Associations.

December 14-17—at Chicago, Ill. American Road Builders' Association. L. Powers, 150 Nassau Street, New York City, Secretary.

State Conventions and Fairs

September 15-16—at New Haven, Conn. Wine, Liquor and Beer Dealers' Association. Jacob Christman, of No. 7 Broadway, this city, is the Chairman of the committee in charge of arrangements.

September 15-18—at Allison, Ia. Butler County Agricultural Association will hold annual fair.

September 15-18—at Milton, Ia. Milton District Agricultural Association Fair.

September 16-19—at Batavia, N. Y. Genesee County Fair to be held.

September 20-October 2—at Caldwell, Idaho. Canyon County Fair Association. J. B. Gowen, Secretary.

September 21-26—at Decatur, Ala. North Alabama Fair to be held. James H. Stone, of New Decatur, is Secretary of the organization.

September 21-26—at Sioux City, Ia. Fair of the Interstate Fair Association.

September 21-26—at Helena, Mont. State Fair. A. J. Breitstein, Secretary.

September 22-24—at Bristol Mills, Me. County Fair. J. Wilbur Hunter, Secretary of the Association.

September 22-25—at Rochester, N. H. Fair under auspices of Rochester Fair Association.

September 22-25—at Rhodes, Ia. Eden District Agricultural Association Annual Fair.

September 22-October 3—at Oklahoma City, Okla. State Fair and Exposition.

September 24—at Los Angeles, Cal. Retail Dry Goods Merchants' Association Annual State Convention. Alfred E. Adams is Secretary of the local Association.

September 28-October 3—at Boise, Idaho. Intermountain Fair Association. William Krull, Secretary.

October 1-3—at Oakland, Md. Garrett County Agricultural Association Second Annual Fair.

October 5-10—at Conway, Ark. Faulkner County Fair Association. J. A. King, Secretary and Manager.

The list of conventions given herewith is published each month so that commercial car manufacturers can communicate with the proper authorities with the idea of arranging to give lectures, illustrated talks, statistics, etc., to show the advantage of motor trucks in these various lines; also possibly to show and demonstrate their cars.

October 6-9—at Philadelphia, Pa. Annual Convention Vegetable Growers' Association. Horticultural Hall.

October 12-17—at Birmingham, Ala. Alabama State Fair to be held. Sam Fowlkes, Secretary of the Alabama Fair Association, is preparing for event.

October 13-16—at Athens, Ala. Limestone County Fair Association. Ernest Nine, Secretary.

October 13-16—at Harrisonburg, Va. Rockingham County Fair. Extensive arrangements are being made.

October 19-24—at Salisbury, N. C. People's Agricultural Fair Association. W. M. James, Secretary.

October 20-24—at Hope, Ark. Hempstead County Fair. W. W. Thorp, Secretary.

October 20-24—at South Boston, Va. Halifax County Fair. W. W. Wilkins, Secretary.

October 26-November 14—at Portland, Ore. Manufacturers' and Land Products' Show. A. P. Batcham, Chairman of the committee in charge.

October 27-30—at Thomson, Ga. McDuffie County Fair Association. Ira E. Farmer, President.

November 2-7—at Orange, Tex. Orange County Fair Association. Secretary L'Hommedieu is preparing for the event.

November 4-11—Louisiana State Fair.

November 4-14—at Mobile, Ala. The Gulf Coast Fair. Mort L. Bixler, Secretary.

November 6-14—at Los Angeles, Cal. State Fruit Growers' Association. Harry F. Stahler, of Yuba City, is President.

November 7-13—at Macon, Ga. Georgia State Fair. Harry C. Robert is Secretary and General Manager.

November 8—at Atlanta, Ga. Fourth American Road Congress. Convention Bureau may be addressed.

November 16-21—at Columbus, Ga. Fair and Poultry Show Association. John S. Jenkins, Secretary.

December 1-4—at Des Moines, Ia. Convention of Iowa Retail Implement and Vehicle Dealers' Association. Commercial Club is interested.

December—at Rochester, N. Y. New York State Dairymen's Association. W. E. Griffith, of Madrid, Secretary.

Firemen's Conventions

September 24—at Ocean Gate, N. J. State Firemen's Association Annual Convention. Wm. Exall, of Newark, is Secretary.

October—at Harrisburg, Pa. State Firemen's Convention. George S. Kroll, of York, State President.

October 16—at Wilmington, Del. Local firemen are preparing for Old Home Week Celebration. Councilman George H. Grantland is Chairman of the committee in charge.

October 20-21—at New Orleans, La. International Fire Chief's Association to convene. Chief Louis Pujol preparing for event.

GOOD ROADS MOVEMENT IN NORTHWESTERN OHIO INAUGURATED BY GOVERNOR COX

At Spencerville, Ohio, near Lima, on August 28, was inaugurated a work which is designed to be the greatest movement for better roads ever undertaken in northwestern Ohio.

The occasion was the beginning of the work of laying many miles of concrete highway and which according to present plans will ultimately spread out for more than 100 miles. The first spade of dirt moved for the new road was taken up by Governor Cox, of Ohio, while several thousand interested spectators applauded.

A parade was formed with the governor's party in the lead, and which as it passed illustrated almost every type of vehicle which had traveled the roads of that section since the pioneer days of the state ranging from the old-fashioned stage coach to the modern high powered automobile. Prominent in the parade was a six-ton B. A.



Governor Cox, of Ohio, on One of B. A. Gramm's Trucks

Spencerville, Ohio, where a one hundred mile concrete highway was started the latter part of August

Gramm's hydraulic power operated dumping truck, which illustrated the modern and up-to-date methods used in the building of the new state highways.

After the parade, Governor Cox addressed the crowd on the subject of good roads, which has his full support. The road work which was inaugurated to-day, is a part of the extensive system of state roads for which Ohio is now spending millions of dollars. After the celebration, everyone was entertained as the guests of Spencerville, at a green corn barbecue.

TEAMING AFFECTS LIVING COST

Motor trucks are strongly recommended as a means of preventing the increasing cost of living in Chicago in a preliminary report issued by the Chicago Municipal Markets' Commission, appointed by Mayor Harrison.

After showing that the city consumer pays an average of \$1.90 for produce that the farmer sells for \$1, the Commission states that it costs more to haul 100 lbs. of potatoes, fruit or other farm products 5 miles from the docks to the city consumer or the retail store, than to ship them by boat from Michigan to Chicago, and it costs nearly half as much (\$.50) to deliver a ton of coal from the railroad tracks to the consumer in the business district of the city as it costs to ship the coal 400 miles by rail (\$1.05) from southern Illinois to Chicago.

It is estimated that in an area of less than 2 sq. miles in the heart of the city, 150,000 tons of freight are hauled daily. About one thousand teams are engaged in hauling food products, exclusive of the delivery service of the retailers, and to make a profit for their owners, single teams must earn about \$6 a day, and double teams \$8.

"Team hauling is decidedly antiquated, wasteful and inadequate," observes the report. "Because of the congestion existing in the streets of the central business district, and the consequent inadequacy of the streets to afford free passage to vehicles, the average wagon or truck spends about one-third of its time actively hauling commodities and two-thirds in waiting, loading, unloading and in delays to traffic.

"Animal transportation is out of place and an archaic survival. Under present methods of hauling, food products are invariably exposed for hours to the heat of the sun. The motor truck as a carrier of food products assures to the consumer better food, lower prices and a lower cost of hauling. Detailed comparisons showing the cost of hauling by horses and wagons and motor vehicles indicate that the average cost of hauling in the city by motor is \$.11 $\frac{1}{4}$ per ton-mile as compared with \$.17 $\frac{3}{4}$ by horse, a saving of 36 per cent.

"The average cost of deliveries by department stores, grocery stores and meat markets is shown to be approximately \$.09 by motor and \$.16 by horse."

KANSAS CITY CONCERN ORDERS ONE THOUSAND TRUCKS

Another record-breaking motor truck sale has been closed recently by the Kelly-Springfield Motor Truck Company, of Springfield, Ohio.

This order is from the National Pure Water Company, of Kansas City, and calls for one thousand one-ton chassis to be delivered during 1915.

A number of trucks will be delivered to this company during the remainder of this year, but the real deliveries are not scheduled to start until February 1, 1915. Beginning with this date the trucks will be delivered at the rate of one hundred a month.

The trucks are to be uniformly equipped. Each is to have a platform body to carry fifty-four 5-gallon bottles of the pure water.

Members of the Motor Truck Club of America Enjoying Their Annual Outing at The Field and Marine Club, Brooklyn

THE COMMERCIAL CAR JOURNAL

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WHAT IS NATIONAL PROSPERITY?


THE opinion is rapidly gaining ground, and being voiced in articles and editorials in magazines and the daily press, that the present war must result in improved business conditions for the United States. It is said that prosperity must follow. This statement, in view of the rising prices on many necessities, is difficult for some to believe; then, too, there is the tremendous economic loss to the world, a loss which has never been equaled during the same length of time in the history of civilization. What, then, does it mean when we say that prosperity must follow for the United States? What is national prosperity?

If the insurance companies, Wall Street brokers, a few exporters and some that deal in securities are to be taken as a basis upon which to judge prosperity of the country, there would be good reason not to believe that conditions throughout the United States will be improved by the European war.

But are these to be considered? It is recognized that these are so-called non-producers. What, then, are the fundamental activities which form the basis judging the prosperity of any nation?

Wealth Producers Upon Which Prosperity Depends: Mining—Manufactures—Agriculture

These three are the prime producers of wealth, all others are secondary, but, of course, necessary. They are, however, impossible without the three fundamentals just mentioned. If, then, the present European struggle causes an increase in mining, manufacturing and agriculture in this country, the fundamentals of prosperity are being laid and the nation cannot help but feel results within nine months or a year.

Although the first effect has been to upset credit, to cut off direct exportations to the countries now at war, and to cause an increase as high as 100 to 400 per cent. in isolated communities, yet there are more far-reaching benefits which more than offset these disadvantages. After the first shock to the business world wears off, industries will rapidly adjust themselves to the conditions. Credit is now being re-established. The lull in all lines of business which immediately followed the beginning of war was but the lull before the immense storm of business increase which must follow.

With practically all of Europe so crippled that the rest of the world has been cut off from its natural source of supplies, we alone stand as the one large wealth-producing nation unentangled. To us the world must come for the bulk of those things of which it has been deprived.

Immediately the objection is raised that we have no means of transporting our products, and this is true at the present time, but is being very rapidly remedied. Lack of bottoms in which to ship will undoubtedly curtail the possible financial gain of this country, but it is confidently believed that with bankers, shippers and the forces at Washington working in unison toward the establishment of a merchant marine, that these conditions will quickly be changed.

There is then at once a demand by the countries involved, for all products which are not contraband of war, and also a pressing demand by all of the countries formerly dependent upon the European nations. This means that if American industries are alive to their opportunities, there will be a tremendous increase of production, and when we say production, we refer to all three prime wealth producers—mining, manufacturing and agriculture.

The opening of the Panama Canal at this time greatly facilitates this shipping, opening up at once the west coast of South America, which has been most inaccessible to our eastern United States manufacturers.

If we grant that there will be this increase in general wealth-producing activities throughout the country, it follows directly that additions to factories and new factories must be built, labor will be in demand, that the farming communities with good crops must take on additional help, that money will be flowing in to them, and that they, in turn, will purchase and consume more than in the past. The same is true of mining, coal and iron being among the first to feel the added stimulation.

Again many new industries must be of necessity spring up in this country to supply products from which we ourselves have been cut off by the cessation of business of the belligerent nations. A large percentage of these products has heretofore been imported, not because they could not be produced in this country, but, as with wearing apparel, simply

on account of fads. In chemicals and medicinal products it has been on account of the prices. Now owing to scarcity the price has gone up, which will make it possible to manufacture these things at a profit in this country. Once manufactured here, the home market supplied with our own goods, the trade will become familiar with them, and some, at least, of these industries will continue even after the war is over.

At the close of this struggle Europe must be financed during the reconstruction period. A high rate of interest will be paid as money will be at a premium. Who of the nations of the earth are in a better condition to supply the needed funds than the United States of America? The nations of Europe will also desire at once every conceivable product known to civilization, so that business can be resumed with

as little delay as possible. Their own sources of supply will be inadequate. This again must stimulate our direct exports to these countries if the American makers have profitably employed the time during which these nations were at war.

In conclusion, we call attention to these facts. Although the economic loss to the world must, of course, be shared by all, the United States assuming its proportion, this will be less than to those who have been engaged in destruction. Furthermore, it will be distributed over a period of many years, and will, therefore, not fall as a distinct burden upon us. To offset a general and gradual rise in prices, if the war continues, the fundamental, wealth-producing activities must be stimulated. With our mining, manufactures and agriculture thus stimulated, wealth is being produced and the production of wealth by any nation means prosperity for that nation.

Business Opportunities With South American Countries Now Opening to American Truck Makers

**Information and Suggestion to American Manufacturers Concerning This New Field.
Increased Business at Home and With Europe After the War**

By E. S. FOLJAMBE


FOR many years there has been a gradual growth of business between the United States and the countries to the South. The most sanguine only hoped for a long continued and gradual increase in this business, not even the dreamers looked for a sudden and complete opening up of this immense territory to the American manufacturer, such as now, due to the unprecedented conditions in Europe, presents itself. These statements must not, however, be construed to mean that big business can be begun at once, or that returns will be immediate. But comparatively speaking, the growth of our trade with Latin-American countries will now be very rapid if properly cultivated. Almost the same may be said of Australia, Australasia.

South American countries, such as Argentine Republic, Chili, Brazil, etc., have always shown a more or less friendly feeling toward American manufacturers and although our business with these countries has been on the increase, having grown from \$17,447,022 in 1870 to \$145,724,022 in 1913, still progress has been very slow due largely to the peculiarities of South American business methods, and to the fact that we did not have the banking facilities in those countries, enjoyed by both the English and the Germans. American manufacturers have not really studied this market. Now, however, almost simultaneously with the cutting off of supplies from them by the cessation of manufacture and export by European countries, we have the Federal Reserve Banks, and provision made under the authority of the Federal Reserve Board for direct bank representation in these countries.

It is but natural that almost immediately when war broke out, South American firms turned to the United States for goods. A plumbing house in New York City received eighteen cables in a single day in the early part of August for plumbing supplies. Another house received five cables for

paint. These orders had been placed with Germany. A Pittsburgh steel plant received an order for 100 miles of rails, while a structural steel concern received an unusually large order which Germany was unable to fill. Steamship companies operating lines between New York City and South America, such as Lloyd-Sprazileiro, immediately placed large orders for American coal, the firm mentioned ordering 36,000 tons.

Great Britain, Russia and Greece, immediately began negotiations for motor-driven trucks with American firms. It is understood that some of these orders it will be possible to fill, one firm now being at work night and day on motor-driven armored equipment, which it believed will go to Great Britain.

South American Banks Being Established

Under the new regulations the National City Bank of New York City has already put men in the field, and arrangements are nearly complete for a branch in Buenos Ayres, and another in Rio, covering Argentina and Brazil. Credit with the largest bank in the former city has already been established.

This bank in addition to doing a general banking business is planning to supply accurate credit ratings of the leading houses

in the districts served. It is further proposed to act as an information bureau for the guidance of American exporters. These branches of service will be in operation within six months.

It is said that a Chicago bank is planning to follow suit, and the establishment of such banks, together with the recently awakened interest on the part of the American manufacturers, will undoubtedly result in suitable banking facilities, and place the American manufacturer so that he can compete with European concerns. This is made all the more probable as at the close of the war European banks will not for some time be in a position to give long time credit as formerly.

Just at present there are many difficulties in the way of shipping. Information recently given the writer by Thomsen & Company, exporters of New York City, in regard to shipments to Australia and Australasia will illustrate the situation. Australia in the past absorbed many European trucks. Since the war practically no trucks have been shipped to this market, the European governments having subsidized or commanded all the vehicles. The United States will doubtless be called upon to supply the demand. At the present time, the German merchant marine has practically been driven from the high seas, and, although it is possible to make shipments in English bottoms,



the banks refuse to negotiate drafts on Australasian firms unless war risk is covered.

Underwriters are demanding 3½ per cent. to 4 per cent. to cover this risk if shipments are made in English bottoms, and only 1 per cent. if made in American bottoms. Consignees would, therefore, have to pay in the neighborhood of 4 per cent. in order to get their goods, and, for a time, this will prevent them from ordering. However, if the war continues the demand will probably become sufficiently great to make it worth while to pay 4 per cent. to cover war risk. The above-mentioned firm believes that there will be a brisk demand for trucks in Australia and Australasia just as soon as the war terminates.

Although there is now a scarcity of American bottoms, it is now generally believed that the American merchant marine is not a vision, it is soon destined to be a reality. Already the ships of such companies as the Standard Oil, United Fruit, and United States Steel Corporation, all of which have heretofore sailed under the British flag, are to come under the emblem of the United States. Herculean efforts are being made by the board appointed for the purpose to secure sufficient vessels to care for our new trade. Even now the shippers and bankers are discussing the question with leaders at Washington, and laying plans for co-operation.

No longer will our manufacturers find that foreign competition is too keen, the European manufacturers having the advantage of the close co-operation of branches of their home banks, such as the London and Brazilian and Anglo-South American banks and branches, in the South American countries. We will soon stand not only on an equal footing with them in this respect since banks are being established and every effort concentrated on building up our merchant marine, but have a decided advantage in the fact that almost every one of the European sources which have supplied this trade are now unable to do so.

The United Kingdom has so far not been affected as much as the other countries, and she is the largest exporter to South America, the figures for 1912 amounting to \$275,400,000 as against Germany's \$177,100,000 but in all probability her exports to South America will be greatly diminished before the war is over.

The opening of the Panama Canal is most opportune at this time as it opens up and makes accessible the heretofore inaccessible west coast of South America.

Now that the chief difficulties, lack of banking facilities and merchant marine, are being rapidly removed, there is no reason why American makers should not avail themselves of the golden opportunity presented, and gain a foothold in these countries. Once gained, it will be practically impossible, even after this war is over, for Europe to again wrest this trade from us.

The Brazilian government and also that of Argentina have given preferential tariff rates in certain lines, have subsidized steamship lines between New York City and other ports, and have from time to time sent influential political and business men to

this country to promote reciprocal commerce relations. In spite of these advances the American manufacturers, recognizing the lack of adequate banking facilities, and handicapped by an insufficient merchant marine, have, in the past, neglected to cultivate personally and intimately the consumers of the Southern countries.

Suggestions as to Requirements for Establishing Trade

Most essential is an attitude on the part of the American manufacturer to build a permanent foundation for future business. No flash in the pan methods can succeed, and it is not policy to attempt to work off goods which do not find a ready sale in this country. This will merely discredit the

this business. This has been one method of increasing both English and German business.

The proper packing of parts, accessories or complete vehicles is an all-important factor. Horns, lamps, electrical accessories, and such parts as are easily damaged, must be packed in cases much heavier than would be necessary for shipment to other parts of our own country. Cases must be built to withstand abuses, such as being swung forcibly against the side of the ship, while suspended over lighters in process of transfer to the shore. They must be more watertight, as consignments are often left exposed to the elements for much longer periods of time than would ever occur in this country.



American manufacturers and prevent legitimate makers from succeeding.

Conditions are very different from those of ordinary business in the United States. According to Senor Romulo S. Naon, Argentine ambassador to the United States, and recently one of the A B C mediators in the Mexican difficulty, payments within 120 days are there considered as cash. Many European firms give as high as 9 months credit, while few American companies have granted more than 3 months at most.

Branches or direct representation must be had on the ground, preferably by men who have lived in the country, or by Americans familiar with South American conditions. Those who have been acting as agents or representatives of German, English, or French truck makers might now be approached to handle American goods, as many of these men are, on account of the war, without employment. In these Southern countries they expect a personal call, and traveling salesmen with proper letters of introduction and all the necessary credentials and familiar with the language, needs and customs of South Americans are necessary. Bids on contracts and all such business has to be done personally and not by mail, and often a period of 6 months elapses between the advertising for bids and the opening of proposals. In other words, American truck makers who propose to do business and grasp this opportunity, must learn South American ways of doing business, and must at once throw men into this territory who understand business customs there. Detailed first-hand knowledge is an essential if permanent business is desired.

Investment of American capital in enterprises involving the use of commercial cars will greatly assist in the development of

Vehicle bodies should conform as largely as possible to the requirements of the country. The suggestion is made that makers ascertain the types of bodies which European makers have been supplying to this trade, and make an effort to provide similar models.

A large part of the export business of the United States has been done through export commission houses, most of which are in New York City. These are virtually the agents of foreign buyers, charging a set commission on all orders filled by them for foreign buyers. Some of these are really mercantile houses with branches in the various countries. In most cases they receive orders direct from foreign houses with whom they are acquainted, and whose credit they know, purchase the goods direct from American makers and pay for same, thus removing all responsibility from the American manufacturer. He is also relieved of any trouble in regard to credits, shipping details, claims, etc. However, the goods have to be reboxed and shipped, and it should be possible for any manufacturer who intends to build up a permanent business to establish and deal direct at less expense in the end. To be successful in this, one must have direct connections with the market.

Best Methods of Entering the Market

Too many American firms have attempted to secure business by sending catalogs, literature, etc., much of this matter has even been in English which, of course, is an absolute waste of postage and literature, but even where published in Spanish and with the prices converted to their standards, but meagre orders result.

Branch Houses

The best method is to establish branch houses in the most important centers. A competent force must be maintained and sufficient spare parts to care promptly for replacements carried. These branches could then establish in time substations in other important centers whose salesmen would be virtually traveling salesmen in a restricted territory. The branches should have the power to adjust all claims without reference to the manufacturer in this country, otherwise long delays disastrous to business will occur, due to the slow mails and transportation methods. This method of course entails heavy expense, and can only be adopted by the largest makers.

As alternative methods there are the securing of resident agencies, that is houses already established and familiar with the trade, and willing to take on American cars. It is also possible to secure business by travelling salesmen, as is done in this country with ordinary lines of goods, but even then some central location where parts can be quickly had is necessary.

Requirements of Salesmen

The requisites necessary for a successful salesman in Latin-American countries are much broader than in our own country. He must be more than a mere order taker, he must be able to appreciate the finer points and other matters beside the mere advantage or profit in a particular sale. Business is largely with the entire Latin-American trade a matter of friendship between the purchaser and the salesman, rather than a mutual profit, as here. The salesman must be a gentleman; he must approach his prospect as one gentleman does another, and letters of introduction from commercial organizations of repute or of well-known firms or banks should be supplied him. The least attempt at hurry is usually disastrous. South Americans do not hurry their business transactions. First visits should be mere formal calls for the purpose of introduction and getting acquainted, with no mention, or the briefest mention of business. After sales have been made, and friendly relations established,

these are maintained as much by courteous details as by favorable prices. Correspondence must also be as courteous as personal conduct. For the above reasons too much must not be expected of a representative at first, particularly if he is handicapped by the language. Owing to difference of business methods, such as taxes on commercial travellers, high transportation, and customs charges, expenses are much higher than for similar work in the United States. Inexperienced men are often imposed upon by those in charge of portage, unloading, lighterage, etc., and exorbitant prices charged. Much time is spent, which we would consider wasted, in attending to checking, and customs details, and as business is carried on for fewer hours a day than with us, progress is necessarily slower.

An agent of the Department of Commerce recently from South America writes as follows concerning the transportation costs, hotel bills, etc.:

"Railway fares and excess baggage charges are uniformly high except in Chile and Bolivia, and fare often run as high as 5 and 6 cents per mile. Ocean steamships fares are excessive, particularly on short runs between Pacific coast ports, being often as much as \$15 per day. River steamship rates are usually reasonable except for very short runs. On the Pacific coast arrangements can be made to buy a through ticket or a round trip ticket from Panama to Chile with the privilege of stopping over in all intermediate ports, and these tickets are much more reasonable in price than tickets from port to port. The disadvantage is in waiting for a steamer of the same line to continue the journey from one point to another."

"Hotel and sample room rates are high in Brazil, Uruguay and Argentina. Decent accommodations with one sample room and meals will average \$12 to \$15 a day in these countries. On the west coast, hotel and sample room rates are more reasonable, and in Chile and Peru, for instance, hotel bedroom with one sample room and meals will cost about \$8 per day. In connection with hotel expenses, baths and bottled water should be taken into consideration, baths

costing 20 to 40 cents each and bottled water 75 cents to \$1 a day.

"Landing charges on the west coast for baggage and passengers are high, the boatmen in most places holding out for outrageous prices unless the traveller shows himself entirely familiar with their methods. The entry of samples through the custom house usually means an expenditure of time, money, and patience. Where justified by lines carried, the simplest way is to put the whole matter into the hands of a custom house broker. This method may at times be a little expensive but it is much more satisfactory.

"Including everything, a salesman can hardly get along on less than \$10 a day, and that means extremely careful expenditure. From \$12 to \$15 a day is a fair average and if many sample trunks are carried expenses may easily run up to \$20 a day."

European War Will Increase Home Demand for Commercial Cars

The varying aspects of the war are certainly being closely studied by the business men of the United States. The consensus of opinion of far-sighted business men seems to be, that if this conflict continues for even a few months there will be a tremendous demand for American made goods, and the mark "Made in the U. S. A." will increase as "Made in Germany" decreases. Some months will be required, but when these new markets are opened in South American countries, business at home cannot help but be stimulated in proportion. A general increase in business must be followed by an increase in the sales of trucks.

The crops of the United States have this year been exceptionally large, particularly the wheat crop, and the war has created a demand for these food products which cannot help but result to the great financial benefit of the farming communities of the United States.

With increased business along general lines, with manufacturers building additions to care for the new business, with a continual growing demand for workmen, with



the farming communities reaping rich harvests from their product, there can be no question but there will be a greater demand for motor-driven commercial cars than there has ever been in this country.

Business men in general are now convinced of the utility, economy if properly installed, and the great advantages to be had by the use of commercial cars, and have only been waiting for business condi-

that is now needed to give new zest to the purchase by farmers of both automobiles and motor-driven farm wagons.

That some of our manufacturers already realize these facts is shown by letters which we have received from the parts makers who are now experiencing orders in larger quantities than they have had for the past 3 years. This war has opened up for this neutral nation possibili-

every available vehicle is in use in the most strenuous service, and may be for many months to come. The wear and tear and the destruction of these vehicles will be very great, a large percentage of them will be rendered useless for further service by their original owners at the close of the war.

The skilled mechanics of the German and French and many of the English factories are at the front, a large part of them will never again build trucks. When the readjustment at the close of this stupendous struggle takes place there must and will be a greater demand for motor-driven commercial cars than there has ever been at any one time in the history of the industry. The business men of all of these countries have become accustomed to using motor-driven delivery and haulage, and will naturally try and regain their business by adopting modern methods. Trucks will be in demand, but who is to supply them? The factories of these countries will not be in shape to turn out at once a large production such as will be required. Naturally, they must turn to the one large producer who has not been interrupted and whose manufacturing facilities are adequate for the task of supplying the world with motor-driven commercial cars. The United States is the one source which can be looked to successfully for such a quantity production.

Are the truck makers of this country going to be prepared? Now is the time to order materials and parts and plan for quantity production and don't forget the mark "Made in the U. S. A."



tions to improve before installing motor-driven delivery.

Farmers throughout the United States now generally recognize the value of automobiles and are among the largest users. This has caused the introduction of an innumerable quantity of moderate priced commercial cars into farm work, the general prosperity of the farming communities which must invariably follow a bumper crop with an unusually good market is all

ties which never have, and perhaps never will again be presented. American manufacturers of both parts and complete vehicles should avail themselves of these opportunities.

United States Must Supply Europe With Commercial Cars After the War

As is well known nearly all European countries subsidize the commercial cars of the business world with the result that now

Opinions of Truck Manufacturers Regarding Business Outlook In Connection With Present European Situation

LOOK FOR ULTIMATE INCREASE IN EXPORTS

TO THE EDITOR:

With reference to the effect of the European war on truck business, the immediate effect has been the cancellation of many orders due to the loss of business by the truck buyers consequent upon the cutting off of all export trade. This has had an especially marked effect through the South in the cotton-producing States, and in the large cities has affected the buying of various firms because of their uncertainty in regard to their own business volume.

The future effect, in our opinion, will depend entirely on the length of the war. As far as the United States is concerned, there are practically no trucks imported, so that if general business is depressed by war, truck makers must expect a decrease in their business. If, on the other hand, general business booms as a result of the high prices that are to be received for all food products and such manufactured articles as can be furnished to the belligerent nations, truck makers can look for a good trade.

We do not expect that the United States can quickly enough produce a merchant marine that can handle the export trade, nor do we expect that we can quickly enough perfect our financial relations with the foreign trade to take over the immense truck

business that has been done by Germany and England. In the end the United States will, without doubt, get an increased foreign business, and it is our belief that the foreign countries can never get this away from us, but we don't look for this increase to be sudden or large at this time.

CHASE MOTOR TRUCK COMPANY.

ADVISES HARD WORK NOW, WITH BIG INCREASE IN TRUCK BUSINESS WITHIN SIX MONTHS

TO THE EDITOR:

Referring to the effect of the European war on the commercial car industry, believe that the following sentiment, as expressed by Mr. Robert E. Fulton, vice-president of this company, will fully express our views. This statement was sent in a telegram recently to all our branches and representatives.

"We are not selling a luxury. Motor trucks, properly installed and intelligently operated, make material savings in delivery costs and enlarge field of operation. The demand for United States products in every line will shortly be greater than the supply. Business must be good in this country. Keep after your prospects now while they have time to listen to you, and be ready with a good foundation laid for the big demand for motor trucks which must come

this fall. Our financial position impregnable. Manufacturing and selling positions stronger than ever. Don't waste a minute, even though you see no immediate results. Hard, consistent and intelligent work now will bring big results within the next six months.

Just now the farmers are busy "mobilizing" their crops, banks are adjusting credits, the Government is acquiring a Merchant Marine, and everyone is on the qui vive of expectancy.

A preliminary reaction from the so-called war scare is being felt. It takes the form of absolute confidence that business will be better the coming year than during the past season.

Printers' Ink, August 27th, published letters from thirty-three manufacturers, representing many of the principal lines of trade in the United States, and every letter radiated optimism. There was no timidity in their determination to strike hard for the new export trade, as well as domestic business that heretofore has been dominated abroad. "Made in America" is to be the new world-wide slogan.

An observation of events during August leads to the conclusion that motor trucks are one of the staple articles that can be sold, and are being sold regardless of European conditions.

INTERNATIONAL MOTOR COMPANY.

LOOKING FOR BIG INCREASES

TO THE EDITOR:

We firmly believe that the present European situation cannot but result to the general benefit of American automobile manufacturers, both of pleasure and commercial vehicles, in the pleasure line because of the enormous number of cars requisitioned by the contending governments and in all probability destroyed, and the shut down and consequent disorganization of the principle European car manufacturers. The commercial end of the business will probably receive a great impetus due to the enormous slaughter of horses and the later increase in price of horses, which must occur as it did after the Boer War.

THE MOTO-KART COMPANY,

OPTIMISTIC

TO THE EDITOR:

We have felt the effect of the European war only slightly, for while our export business with the countries involved has been brought to a standstill, our business in that direction was comparatively small, and whereas our other excellent export business in Australia and South American

points, as well as our Canadian business, seemed to have received only a one week's setback, as since the war started we have been able to renew shipments.

As regards near future business in this country, would say we hesitate to feel same will be seriously affected, and we have no reasons to be other than optimistic.

H. J. KOEHLER S. G. COMPANY,

AFRAID UNITED STATES CANNOT SHIP TRUCKS

TO THE EDITOR:

We cannot see how it is possible to avoid the effect of the European situation on the commercial car industry.

We are informed that the United States Government, as a part of its neutral program, will prohibit the exportation of motor trucks and motors as well.

There may be a temporary increase in the domestic demand for trucks if the present plans for increase in merchant marine are carried through, but we cannot see how there can be a permanent increase in the business unless foreign countries are in a position to purchase American-made vehicles and the home government will permit exportation.

DRIGGS-SEABURY ORDNANCE CORPORATION,

WAR WILL STIMULATE OUR TRADE

TO THE EDITOR:

We believe if the United States can successfully keep out of the turmoil and maintain its neutrality, there is no reason why trade should not be considerably stimulated, especially if the steps now being taken to court the trade of South American countries is pushed vigorously.

We also cannot help but believe that there will eventually be a market for American products in the warring countries, inasmuch as military operations always curtail agricultural and manufacturing activities.

THE ADAMS BROTHERS COMPANY,

EVENTUALLY LARGE EXPORT BUSINESS

TO THE EDITOR:

In our minds, while it may not be so for a few months, the war will eventually mean a large export business in this particular line, as there is no doubt now in the minds of the warring nations, as to whether the commercial car can be used to advantage, as we read right along how motor trucks are used for quick delivery of provisions, ammunition, etc., which is surely a great help.

ROWE MOTOR MANUFACTURING COMPANY,



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If War Was Hell in Sherman's Time, What is it Now, With Modern Fighting Machines?

1. Armored cars of Belgium, waiting to attack Uhlans just located in the village of Jodogne. Note the automatic rapid-fire gun on vehicle at left.
2. Method of carrying by trucks, tanks of pure drinking water, which follow in the wake of the French army.
3. Trucks carrying soldiers, and trailing ammunition wagons and guns. Attention is called to the fact that they are traveling across country. Each gun would have required sixteen to twenty horses.
4. Automobile trucks being used by the Czar, in the phenomenally rapid mobilization of 1,280,000 men.
5. British army trucks in France, transporting troops and the commissary division.
6. A kitchen on wheels, accompanying the German troops under the command of the German Crown Prince.

Use of Trucks by Public Utility Companies of Kansas City

By W. D. MENG

LONE of the largest users of trucks in this field is the Missouri and Kansas Telephone Company, which is the Bell Company of Kansas and most of Missouri. "We really have purchased heavily of motor trucks for hauling, because they accomplish twice as much work without increasing the number of employees," said an official of this company at Kansas City. "Irrespective of the saving in actual expense, if any, we have to have the trucks, because we have to get a great deal of work done promptly. As to the saving—perhaps I need only hint that the cost of the equipment dwindles in a few years, even in a few months, into insignificance when one considers a saving of fifty per cent. or more in the payroll, and a consequent saving in the management and disposition of the employees. Efficiency is of course the thing aimed at—and the quickest, surest results are obtained with auto trucks. And as suggested, the minimum number of men necessary to get those results is a factor in efficiency."

This company has only recently become so general a user of auto trucks. November 22, 1911, the first truck was bought for service in what is known as the "plant" department, the department that constructs, repairs and maintains the physical plant. But since that wagon was given a chance to show its usefulness, the company has been buying them; one, two or three at a time, until now it has nineteen in service. These are International Harvester gas trucks of

about 1500 lbs. capacity, and seem exactly the thing for the duties exacted by a telephone company. The original wagon that started their use by the Missouri and Kansas Company is still in service in Kansas City. The nineteen wagons are distributed as follows over the company's field: Wichita,

The company until seven months ago, however, hired its heavy hauling out. The IHC wagons were ideal for quick service and light carriage, for the construction and repair men to carry implements and tools and small supplies, but the big reels weighing often more than 3 tons were another



GMC Truck Used by Kansas City Street Railway

ita, three; Topeka, three; St. Joseph, two; Springfield, two; Independence, one; Hutchinson, one; Kansas City, seven. The company has also a fleet of Fords for inspection work, and in addition, many employees own their machines, the company paying stipulated "rental" in lieu of travel expenses.



GMC Electric Tower Wagon of St. Joseph Light, Heat and Power Company



Gasoline Trucks Used as Tower Wagons by Metropolitan Street Railway Company, Kansas City, Mo.

problem. The hiring of the transportation of the reels, and of the heavier supplies, grew a little expensive, because the company was needing the services of the hired truck a fair part of the day. So they bought a big Baker electric truck, two tons capacity, and they have been able to keep it busy. Once Manager R. F. Simpson of the supply depot put a reel having a "219" cable, the whole weighing 6600 lbs. on the truck—and the truck took it to destination. Ordinarily the largest load is the two-ton reel, and these the truck handles easily and quickly. One illustration shows the big electric returning to the depot with empty reels.

The company also maintains motorcycles by the dozen for emergency men, several at the supply depot and one or two at each of the exchanges and substations.

Street Railway Finds Trucks Indispensable

The Metropolitan Street Railway Company in Kansas City, Mo., uses all kinds of

vehicles in repair and construction work—its own street cars fitted with towers and wagon beds and working equipment; horse-drawn wagons with light towers; and motor trucks. Four years ago, the railway company bought its first truck, a two-ton Walker electric, which was fitted with a tower. This truck is now used for carrying heavy loads, and is stationed at the headquarters at Fifteenth Street and Grand Avenue.

ity with which the repair trucks and towers can be got to the scene of a trolley break or other trouble has been largely responsible, no doubt, for the smoothness with which the Metropolitan has run in the past few years. The electric truck used for heavy hauling is frequently called into service to drag broken-down vehicles off the track—and citizens have smiled to see this machine dragging a pair of mules hitched to a

points. The three tower motors, distributed, protect the field.

Electric Light Company Uses Electrics Almost Exclusively

The Kansas City Electric Light Company is not only a large user of auto trucks, but one of its own best customers for current. The company has nine electric trucks, of various makes, for heavy hauling and for



Trucks Used by Kansas City Electric Light Company

Upper left is the electric "trouble shooter"; upper right, the gasoline "pulmотор" car; lower left, electric freight wagon; lower right, big G M C electric and one of the Walker delivery wagons

There are three gasoline two-ton trucks, a Knox and two Kellys, that carry towers, besides electric and gas trucks for hauling.

"I believe we did figure out the efficiency of these trucks," said an officer of the company. "But the main consideration with us was to get the men and materials and tools to the spot when an accident happened, and the auto trucks are so far ahead of horse-drawn vehicles for that purpose, that despite any disparity in cost, we would not change back now, even if the present cost were greater."

Of all utilities, the street railway is perhaps under the gravest necessity of meeting its emergencies promptly. A tie-up morning or evening when crowds are being moved, means not only serious congestion, but vociferous complaints. And the rapid-

wagon that had stalled on the track, pulling mules, wagon and partly dumped load out of the way in a moment. The Metropolitan can transfer immensely heavy loads on its own freight cars and tracks, and often a tower car can be routed to reach the scene of a trolley break. But the motor tower trucks are in constant readiness for service, or if away on hauling duties can be reached by telephone and summoned to the scene of difficulty. The large territory covered by the Metropolitan tracks—perhaps the largest area of any company in the United States—makes particularly economical the use of motor trucks, since they can cover distances in short time, and render unnecessary the maintaining of a large number of horse-drawn or street car trucks at various

delivery purposes; it has one gasoline car, the little car in which the pulmotor of the company is taken on its hurry calls to save or try to save life. The heavy trucks of the company, and the ton and a half trucks for general hauling and repair work, usually care for several jobs during the day, starting out with two or three men and dropping them, calling for them later. Then there is the trouble shooter, which is dispatched on hurry calls for repair work, and the electric delivery wagons, which take the smaller electric goods purchased in the company's retail department to the customers; and the trucks with which general freight is moved. The company maintains a few horse-drawn vehicles for minor cases of repair and installation where the men are

kept for several hours, and there is no opportunity to use the vehicle meanwhile.

The cost of operating and maintaining the trucks is carefully noted by the electric light company; it charges itself for current exactly as though it were its own customer. Indeed, on the books of the electric light company, charges for current and care of cars are made against the "Electric Truck Company, of Kansas City, Mo."

emergencies, and whenever the work gets a little ahead of the teams, motor trucks are hired to carry supplies to points where construction work is under way. "Ordinarily," F. R. Bigler, purchasing agent, said, "the teams have plenty of time to transport the pipe and supplies to even the more distant places where work is to be done. But when there is necessity of getting a large amount of pipe out in a comparatively short time,

tower wagon of the street car company. The St. Joseph Light, Heat & Power Company, used this one-ton truck until April, 1914, when a two-ton truck, also electric, and also GMC, was bought to do the heavier work of the company. Both trucks are now in active service, the smaller one being used to answer emergency calls, the larger to carry the tower and sustain the weightier burdens.



Trucks Used by Bell Telephone Company in Kansas

The two upper are IHC's, of which nineteen are used for quick service and light loads. Lower left is one of a fleet of Fords used for inspection work. Lower right is a two-ton Baker electric, employed in handling cable reels, which are generally 2 tons, but on one occasion a reel of 6600 lbs. was handled successfully.

which nominally owns the trucks. This company is charged \$0.035 a kilowatt for current; the commercial rate in Kansas City is \$.04, and that for pleasure vehicles \$.05. A charge of \$20 a month is usual in Kansas City for caring for electric vehicles. The Kansas City Electric Light Company charges, itself, for instance, this \$20 a month for each car, and the current used brings the total charge for a two-ton truck to about \$55 a month. The electrics are figured at \$.28 per car mile, while the gas uses, for travel of officers, are figured at \$.14 per car mile.

The Kansas City Gas Company owns no motor trucks; and it owns few of its heavier trucking teams of horses. But in

no recourse will answer except motor trucks."

In these cases the Sweeney Auto Transportation Company sends one of its big GMC, or Samson or Reliance trucks, which is loaded high with pipe, and gets the work done in a fourth of the time horses would consume. In summer the discrepancy is even larger, since the horse-drawn vehicles are less heavily laden, especially on the hilly Kansas City streets. The company pays \$1.65 an hour for the trucks which it hires.

St. Joseph, Missouri, Uses Electrics

In September, 1913, the city of St. Joseph, Mo., saw its first big tower truck hustling around the streets instead of the clanging

Seattle, Wash., has recently purchased a three and a half ton G. M. C. truck for use in the water department.

Milwaukee, Wis., Water Department claims that motor trucks cost \$100 less for upkeep than a horse and wagon, with double efficiency, for the year 1913.

The Highway Department of Altoona, Pa., has a two and a half ton dump truck, which will be used as a "pickup" for the street cleaning department as well as for hauling sand and stone.

The New Orleans garbage collection system will be thoroughly organized and power wagons will be used for the collection of garbage when the new incinerators are completed.

The Uses of Motor Trucks by Public Service Corporations in Western New York

By GEORGE W. GRUPP

MOTOR trucks are becoming more popular every day with all of the up-to-date and wide-awake public service corporations. They are replacing the old horse and wagon wherever it is possible or where they have been taught that it is possible to replace the horse. The other corporations will soon fall in line as soon as they realize that motor trucks are swifter, handier, more economic and are able to do two or three times as much work as a horse.

After visiting 87 public service corporations in western New York, which includes the most important, which is only 64 per cent. of the total number, the writer found that 85.06 per cent., or 74 corporations, did not use trucks at all, that 13.79 per cent., or 12 corporations, used more than one truck and that 1.15 per cent. or only one corporation, used only one truck. Out of the 190 machines (this does not include the 85 motorcycles) owned by these 13 corporations, that 22.10 per cent., or 42, are electrics and 77.90 per cent., or 148, are gasoline cars. Only 89 could be, strictly speaking, called trucks; 16 are roadsters converted into delivery or trouble wagons, which have a canopy or paneled body; 54 are roadsters with a box attached to the rear of the seat, 24 are roadsters, and 7 are touring cars. One corporation alone owns 63 machines and 68 motorcycles, while the others own anywhere from 31 machines down to 1.

Gas companies, like all the other public service corporations, use two classes of trucks, those which are used to make fast runs, such as emergency jobs, and the other class is used for slow runs or for new construction work. Usually the slower runs are made by the heavier trucks, which vary in their loading capacity from 3 to 5 tons, which are loaded down with heavy pipes, blacksmith's tools, pipe-fitting tools, ropes, chains, spades and all other tools which are essential in the construction of a

new pipe line or the replacing of an old one. These trucks are required to sometimes make hard and long runs, distances ranging from 70 to 80 miles, over hills and muddy and poorly constructed roads. It was found that they make an average daily mileage of 53 miles, consuming gasoline at the rate of 1 gallon for every 6 miles. Lighter cars, varying from 1500 to 3000 lbs., are used for fast runs, such as emergency jobs and the carrying of such tools and material as would be required on such jobs. They average about 35 miles a day, with a gas consumption of one gallon to each 8½ miles. In the meter department, or for

the light-work Fords, with a delivery body, canopy or paneled, seems to have become universally used because of their being economic and easy to run.

Trucks are used more widely by the telephone companies than by any of the other public service corporations. From this it seems that the telephone companies are the only ones who realize the many uses that a motor truck can be made to perform. Again, the heavy trucks are used for slow runs, where it is not a question of speed, but for such heavy work as the pulling cables, both under and overhead work, and the raising, carting and towing of poles on

TRUCKS AS USED BY 87 P. S. CORPORATIONS IN WESTERN NEW YORK

Make.	Trucks.	Roadsters.	Roadsters with Box.	Roadsters Converted, Canopy or Panel Body.	Touring.	350 lbs.	750 lbs.	1500 lbs.	1 ton.	1½ ton.	2 ton.	3 ton.	5 ton.	Total of Each Make.
Oldsmobile	..	..	3	..	..	..	..	..	..	..	..	..	..	3
Locomobile	..	..	..	..	..	..	..	..	..	..	..	..	..	13
Autocars	13	..	..	..	..	..	..	..	..	..	..	..	..	13
Peerless	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Baker	13	..	..	..	..	..	..	..	..	..	..	..	..	13
Franklin	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Atterbury	2	..	..	..	..	..	..	..	..	..	..	..	..	2
Buffalo Elect.	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Buffalo Mtr. Truck	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Havers	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Am. Electric	2	..	..	..	..	..	..	..	..	..	..	..	..	2
Ford	..	18	48	15	..	..	..	..	..	..	..	..	..	81
Thomas	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Buick	5	2	2	..	2	..	..	..	..	..	..	..	..	11
Adams	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Federals	2	..	..	..	..	..	..	..	..	..	..	..	..	2
Pierce	2	..	..	..	..	..	..	..	..	..	..	..	..	2
G.V.T.	14	..	..	..	..	1	4	..	2	3	2	..	..	14
Stearns	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Stewart	9	..	..	..	..	..	..	9	..	..	..	..	..	9
Mack	5	..	..	..	..	..	..	..	..	..	..	..	..	5
International	2	..	..	..	..	..	..	..	..	..	..	..	..	2
Cadillac	..	1	..	..	1	..	..	..	..	..	..	..	..	2
Babcock	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Chase	12	..	..	..	..	..	..	..	..	..	..	..	..	12
Chambers	..	..	..	..	3	..	..	..	..	..	..	..	..	3
Hupmobile	..	..	..	..	1	..	..	..	..	..	..	..	..	1
Columbia	12	..	..	..	..	..	..	..	..	..	..	..	..	12
Totals	89	24	54	16	7	1	4	16	10	36	15	3	2	190

Total No. Motorcycles is 85.

* Touring 60 h.p. converted in truck with delivery panel body.

** 32 h.p. touring converted into truck. (Only one.)



A Group of Federal Telephone Company's Motorcycles as Used by Their Trouble Men, Still Alarm, Cable Superintendents, Foremen, Etc.

THE COMMERCIAL CAR JOURNAL

little two-wheeled trailers. Some of these trucks are equipped with a winch, large ladders, ropes of all sizes and other tools. Large reels of cable and other material are loaded on them as needed in heavy construction work. The lighter trucks, which average about $1\frac{1}{2}$ tons, are used for light-cable pulling, pole work and for general insulation work or for the city line work. Fords are used by the foremen, superintendents, line men, line supervisors, line inspectors, engineers, etc., which are equipped with a light box attached to the rear of the seat, in which they carry such things and tools that are needed for very light construction or emergency work.

Only one express company uses motor trucks exclusively, while the other express companies use only a few or none at all. Electric trucks seem to predominate, as there are over twice as many electrics as gasoline trucks. Gasoline trucks are used for the delivery work in the outskirt distances of the city, that is, provided that they have any gasoline trucks. One of the express company's officials said, "We consider the gasoline cars more safe in the outskirt deliveries as we then do not have to worry about the batteries running out; therefore, we confine our electrics as near as possible to the downtown districts."

and a half ton truck has been found the most practical in this work.

Power companies are also beginning to use motor trucks more extensively than ever before, and as one official said, "We find that a 1500-lb. truck can do twice the work of a team of horses and carry a larger gang on the truck and get them there twice as

ber of them are small electrics. These trucks, if we may call them such, are equipped with a delivery body, canopy or paneled. These are used for the delivery of lamps to their customers; the delivery or getting of meters; to make fast runs in the event of a small break in the line, short circuit or the cutting in service, or other emergency work, and as trimmer's wagons. Then the supervisors, line inspectors, superintendents, line crew, line supervisors, chief operators, engineers, etc., use light runabouts. While they do not all have a box attached to the rear of their seat, yet nearly all of them carry a few emergency tools and material with them.

The writer found that the trucks used by the power companies ranged anywhere from 350 lbs. to 5 tons, consuming gasoline at the rate of $6\frac{1}{2}$ to 14 miles to a gallon, and the electrics had to be charged after a run anywhere from 25 to 40 miles, this depending on the size and load the truck carried.

A few of the corporations supplied their officials with touring cars for business purposes, instead of roadsters, as used by the other men and subordinates. Those that use them seem to think them a profitable investment.

Motorcycles have taken a very prominent position with a few of the corporations, especially with the telephone and gas companies. At the telephone companies they are used by their trouble men, superintendents, still alarm men, foremen, etc., while the gas companies at present only use them for re-reads of meters or when reading meters in a scattered neighborhood, so as to save time for the meter reader.

The heavy trucks range from 5 to $1\frac{1}{2}$ tons, which are used for cable pulling and all the heavy construction work done by power companies, such as line construction, overhead and underhead line construction, or repairs. These trucks are usually equipped with ladders; pumps, to pump the water out of the manholes; wooden blocks, cross bars, wires, reels of cable, etc. They are also used to carry transformers and, in fact, all of the heavy carting that has to be done in connection with line construction or repair work. The lighter trucks are used by the meter, lamp and trouble departments, which are usually Fords; however, a num-



A 750 lb "G. V. T." Used as a Line Wagon by One of the Power Companies at Niagara Falls, N. Y.

The heavy trucks are used for the delivery of express packages between the railroad stations or for such forms which handle heavy expressage. The trucks average about 35 to 40 miles a day, consuming gasoline at the rate of 1 gallon to every 7 miles, while the electrics are recharged every night. The trucks vary in loading capacity from one ton to three tons, but the but the one and a half ton truck seems to be the favorite size.

Traction companies are not so very strong on the use of motor trucks. However, a few have awakened to their real value. Their trucks are used as emergency wagons in the event of a breakdown of some car, the removal of some obstacle which blocks the right of way, repairing of wire breaks, stringing wires, pulling cables, etc. Because of the various uses of this truck it is equipped with large ladders (extension), which are attached to the truck and used in making trolley wire repairs. A small supply of cable, other wire, blocks, jackscrews and other tools used for emergency work is carried on this truck constantly. Then they also use small trucks for light carting, such as the carting of light material to and from a job. The one

One of the Buffalo General Electric Fords With a canopy top, used by the trouble, meter and lamp department

fast. While driving through a plowed field or muddy road for a distance of any length the horses are bound to get tired and will need a rest. This is not so with our motor truck; we can keep on going without a rest to our destination, provided, of course, the engine keeps working."

One thing that is different about the hard uses which a truck receives between the power companies and that of the express, telephone and gas companies, with the exception of the traction companies, is that they are used day and night with the power companies, while not all of them, or a few, are at least in continuous operation day and night. Large searchlights are attached to these trucks, so that the men can see what they are doing while working in the night.

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Many of the trucks now in use by the public service corporations are still in the experimental stage as far as the user is concerned, as he has not as yet realized all



Two 1500lb. Buick Trucks as Used by the Federal Telephone and Telegraph Company, Buffalo, N. Y.

The truck to the right is used as a line wagon, while the one to the left is used as a cable wagon.

the uses a motor truck can be made to perform. Each day is bringing new light to these corporations—new ideas that they would like the manufacturers to use when constructing the motor truck of the future. Some of these ideas are practical, while others are not. Some need individual expression and cannot be made to suit standard needs; and the only way the manufacturer can keep the users of trucks as his customers is by putting out a car that will suit the needs and uses of the buyer.

In constructing trucks for prospective buyers several things should be considered, namely, the wheels, tires, body and engine. He must consider what the buyer is going to use the car for—for what purposes. He must consider: "Does the buyer want to use his truck on smooth, level roads or does he want to use it on rough, hilly roads or through the fields?" "Does the public service user want to use it for speed runs or slow runs?" All of these things must be considered and weighed by the manufacturer.

The best kind of wheels the writer found that suited the users were high-gearred wheels, when used for muddy roads or fields, while the low-gearred wheel for level, smooth roads. Then, again, truck users have found that the pneumatic tires give the best results where speed is required. This is because it relieves a great deal of the jar to which the car is subject with solid tires. One firm states that they had a sad experience with solid tires on their trucks used for speed runs. They found that the jar on the engine and other mechanism was too much, with the result that a great deal of repairing had to be done. Since then pneumatic tires have been used and the results have been wonderful.

Then the mechanism of the engine ought to be of the simplest possible, because few men who drive these trucks are expert



Automatic Transportation Company Truck Hauling Baggage

chauffeurs; they might be mechanics, but not an automobile mechanic. Therefore, the simpler the engine, the easier it will be for the man driving the car to make the repairs in the event of a break-down on the road. It thus would take less time to take apart, repair and replace same, which means a saving of money and time for the employer. And truck users are always on the lookout for cars which are the most economic, serviceable and one which is the most quickly understood.

The body of the truck is another very important feature about trucks. The style of the top does not make so much difference

as the size and construction of the body relative to loading space and capacity. The bodies should be of the finest grade of material. The body should be so constructed that it is easily adapted to the uses the buyer wishes to make of it. For example: What use is a high-gear, high body for the hauling of large reels of cable? Of course it can be used, but always to the disadvantage to the user, because it requires a great deal more energy to lift large reels of cable on this wagon than had it been a drop-wagon type, where the body is but a few inches, or say a foot, from the ground, equipped with round bars, upon which these reels may be revolved, and a large winch, which can be operated with the motor in the pulling of cables. Someone has suggested to the writer that a truck that would hold three large reels would be the ideal truck, or a truck with a loading capacity of a little over 6 tons.

The level of the floor in express wagons ought never to be higher or lower than the platform; springs ought never to be permitted to extend out over the box, as they are apt to be broken while backing up against a platform or the like. In other words, the height of the body should be made to suit the convenience of the customer, if the manufacturer wishes to retain the customer on his books.

A very bad habit which the writer observed was that men would always overload their trucks. In one particular instance the writer actually saw a truck, built to carry 1500 lbs., carry a ton and a half. Had not the manufacturer put in such good material as he did the truck would never have stood the strain. It might be an advisable thing for the manufacturers, when marketing a truck, to give it one-half its capacity, so as to prevent a possible serious accident, as the users seem to use little judgment as to the amount that a car was made to carry.



Automatic Transportation Company Truck With Forty-five Hundred Pounds of Newspaper Mail



Automatic Transportation Company Truck Hauling Freight From Freight Cars

Wherever the corporation used motor trucks it was found that they had their own garage, which was under the direction of the superintendent, who was usually an engineer, and who placed the garage itself in charge of an experienced and expert automobile machinist and chauffeur. Nearly all of the companies made their own repairs in their own shops, which were equipped with the various machinery essential in the making of automobile repairs.

The foreman of the garage in all instances keeps an accurate account of the gasoline and oil that was used on each machine each day and the number of miles it covered. If any repairs were made on the car this was also charged against this car and the amount of time and material it took to repair the car. Each night the machines are inspected so as to assure safety before leaving the place the next day. All the gasoline, oil and grease cups are filled, so when the men come the next morning the truck is found ready.

While the railroads locally do not use motor trucks, yet the writer found that the Automatic Transportation Company, manufacturers of freight trucks, had installed their trucks with a number of the railroads and steamship companies outside of Buffalo to be used in the handling of their freight about the freight houses and yards and the baggage to and from the trains. These trucks carry anything, from 1 up to 2 tons. They are used in carrying package freight, iron and steel sheeting, bars, tubing, etc.; baggage to and from the baggage room to the trains, the hauling of freight to and from the steamships, etc. They are also used to carry mail as well as newspapers to and from the railroad station to the trains.

After going over the ground with public service corporation motor truck users, it was found that it was the unanimous opinion that the one and a half ton truck

was about the standard size truck. Some preferred the gasoline, while others thought the electrics the better. Solid tires were preferred on slow and heavy trucks, while the pneumatics were preferred on speed-run trucks. The body of the truck should be designed to suit the convenience of the customer or users and not the manufacturer, and that the trucks ought to be able to carry heavier loads than they are rated at. They should have a simple but good engine and one that is economic to run.

SPECIAL FIVE-TON SAURER TRACTOR-TRAILER FOR HANDLING HOT ASPHALT AND CONTRACTING MATERIAL

This five-ton Saurer tractor-trailer dump outfit, a product of the International Motor Company, has recently been placed in service by the Borough Asphalt Company, Brooklyn, New York. This truck is used in connection with a special dump trailer which is an innovation. The trailer body has a capacity of five tons, or 100 cu. ft., and is equipped with a Wood Hydraulic Hoist, dumping from the rear. It is unusual to mount an automatic dump mechanism on a trailer. The body is of wood 10 ft. 6 in. long, 4 ft. 6 in. wide at front; 5 ft. wide at rear, 2 ft. high, lined with sheet steel on the inside, with a $\frac{1}{2}$ -in. asbestos lining between the wood and steel sides, and is designed to carry hot asphalt, broken stone and sand. The dump mechanism of this trailer body is controlled from the driver's seat on the tractor, and raises the body 45 degrees. The oil pump for operating the hydraulic hoist is mounted on the driving shaft, and the fluid is forced back into the hoist on the trailer through flexible pipe connections.

Most trailers have the dump arrangement at the bottom, but for a number of reasons it is not advisable to handle hot asphalt in this manner. There would be considerable disadvantage in closing the dump opening if hot asphalt was dumped through the bottom, owing to the clinging nature of this substance, which prevents tight closing. It is necessary to have a very tight body for transporting hot asphalt, as it is handled at a temperature of 300 degrees, and must be kept hot until worked into position on the street.

The Borough Asphalt Company, is very active in the use of tractors and trailers in its paving and road construction work, and



Automatic Transportation Company Truck Ascending Thirty-five Per Cent Grade From Steamer, With Assistance of an Inclined Elevator

See comparison with hand truck



Saurer Tractor-Trailer Outfit
A fifth-wheel type of coupling is one of the features in construction

is getting fine results from the Saurer tractors, of which they now have seven. Trailer outfits of this nature give greater flexibility of operation and permit heavy loads to be handled in rugged service where it would not be possible for a truck with a capacity load to pull out.

Important in this Saurer tractor-trailer construction is the universal coupling which

links the two units together. This connection is by a type of "Fifth Wheel," which permits quick attaching and detaching. Wheelbase of the Saurer tractor is 10 ft. 8 in. Exclusive of the Saurer chassis, cost of the trailer outfit complete, including "Fifth Wheel," hydraulic hoist and pipe connections, body, frame and trailer wheels, is \$1200.

level-headedness in doing so, proved the value of the trucks. One instance in point is where a truck, hurrying to make repairs on a line some 12 miles out from Los Angeles, in the Verdugo Wash, got stuck after traveling 11 miles. The men hiked the remaining miles, packing material on their backs. Another truck was brought from the city to pull out the one which was stuck, and it was available for service again before a horse team, started at the same time as the first truck, could have gotten to the point at all.

Another example of good truck strategy occurred when a truck was stuck in a narrow strip of bad road, a few miles out of the city. Headquarters was notified by telephone, and immediately sent another truck to the point by a round-about route, so that it came in to the bad spot, backing in from ahead toward the stalled truck, threw out a line and pulled it out quickly. Here again the obstacle was met and overcome, and the crew on its way again, in much less time than it would have taken to reach the obstacle at all by horse conveyance. These people naturally have no patience with anyone who talks of horse equipment being necessary for mud or sand. Trucks and telephones are the combination that make sure time.

This company at present maintains a fleet of six trucks—two three and a half ton Moores, one one and a half ton Moore, one three and a half ton White, one three and a half ton Alco and one three-ton Gramm. Also one old Buick "Twenty," two-cylinder, which is about used up, after 6 or 7 years of service, and a number of touring cars for special service. The trucks are employed most extensively on heavy construction work. Much of it is along bad roads, winding and sandy, in mountainous or hilly country. The trucks serve a stretch of 10 miles under construction, conducted from one camp. Then camp is moved and another 10 miles is taken up and completed. The vehicles carry poles, cross-arms, men and tools and wire. Some of the reels of wire, when full, weigh 2 tons. Wire is unreeled

Motor Trucks in Heavy Electrical Construction and Repair Work

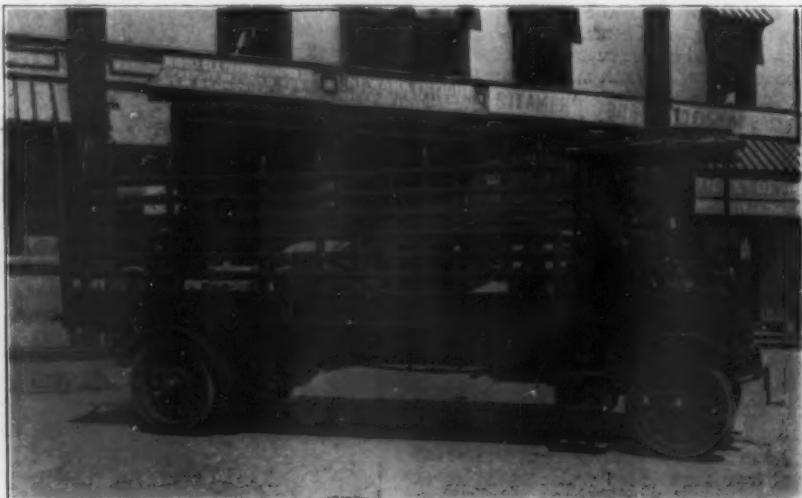
By FRANK REED

FLOOD conditions of last spring, in southern California valleys, placed a critical test upon the motor equipment of the public utility companies operating in that section. Waters rose to a height which was never anticipated in this locality, and carried away culverts and sections of highway, and created severe mud and water obstacles to transportation on the roads which were not washed out. Of course, the wire plants of public service corporations were affected. At a time like this, restoration of interrupted wire connections is a duty on which the public utility company officials expend every bit of available energy, working day and night without sleep until the job is under control. They are driven, to some extent, by the desire to stop the loss of revenue incident to the interruption of service, but still more to retain and develop the element of public good-will, which is coming to be appreciated as a public service corporation's chief asset, and, finally, by a sense of duty to the public and their customers, which is particularly pressing in a time when the company's services are doubly needed on account of public calamity.

Motor transportation that demonstrates its superiority at a time like this wins the everlasting good-will of the company's officers. If it falls down, it presents a weakness in the company's equipment which must be forever guarded against by some kind of a reserve. A public utility positively cannot afford to take chances on anything that will contribute to delay in these emergencies, even though they are of remote and uncertain occurrence, because it is a demonstrated fact that at intervals

in the life of each public utility, destruction from the forces of nature does occur, suddenly and on a more or less extensive scale, with incidental obstruction to normal transportation.

The motor equipment of the Pacific Light & Power Company, Los Angeles, Cal., behaved handsomely during the floods of last spring. There were numerous occasions when trucks were stuck, but in every case the company employed truck strategy, instead of horse or mule strategy, to extricate itself, and by its courage and



Sternberg Three-Ton Truck Used by New York Department of Docks and Ferries
The particular interest in this truck is the wheelbase of 192 in., which is unusual for a truck of this capacity. The body is 18 ft. long. The Department carries long piping and timbers

and strung on poles directly from trucks in motion. It is necessary to watch constantly against overloading by construction men. The drivers are pretty well trained against over-speeding, and no mechanical check on this point is employed.

Under the heavy service conditions to which these trucks were subjected, it was found that a great deal of trouble was experienced with bearings and heating of the engines. Finally the 40-h.p. motors were taken out of the two three and a half ton machines and 60-h.p. engines installed in their place. Since this was done, a great deal less trouble with the bearings and heating has been noticed, leaving those in charge of the trucks with the impression that, where the service conditions are unavoidably heavy, an ample reserve of power will save a great deal of wear and tear on the truck.

SPECIAL TRUCK FOR CLEANING SEWER MANHOLES

The International Motor Company, recently delivered to the Bureau of Sewers, Borough of the Bronx, New York, a seven and a half ton Mack dump truck of original design, equipped with a motor operated crane for lifting buckets of sediment from sewer manholes and depositing contents in the body of the truck.

Heretofore it has been necessary for a gang of men to laboriously haul a small bucket of refuse from sewer manholes by hand, or else use a tripod derrick which only slightly aided matters. With this truck, it is possible to run the truck alongside the curb, and with the swinging crane, raise a bucket of silt weighing one and a half tons above the sides of the body and dump it on board. The truck has a special steel watertight dump body, with a capacity of 3½ cu. yds. The body is equipped with the Hunt dumping device. As the material to be dumped is of a quality which offers considerable resistance to gravity, the body is raised to an angle of 60 degrees.

The hoist is manufactured by the Brown Hoisting Machinery Company, Cleveland, Ohio, and is operated from the clutch shaft and controlled by a lever which is directly behind the cab, within easy reach of the driver. It is possible to rotate the crane by hand so that material can be picked up from either side of the truck. The crane rotates from 200 to 220 degrees. With the propeller shaft revolving at 600, the crane has an effective hoist speed of 20 ft. per minute.

Wheelbase of the truck is 14 ft. 6 in. Front wheels 36 in., equipped with 36x6-in. Goodyear tires. Rear wheels 42 in., equipped with 42x7-in. dual Goodyear tires. The motor is a 50 h.p. Mack.

A truck of this type offers many possibilities in the trade. It can be designed with either a platform, rack, or dump body for carrying any commodity that can be picked up with grapping hooks or gathered up in a bucket or scoop. With the power crane it should make easy the handling of such diverse material as cut stone, bales of cotton, castings, etc. Total weight of this truck with a six-ton load does not exceed weight of a regular seven and a half ton Mack dump truck loaded to capacity.

Truck Service of Home Telephone and Telegraph Company

By FRANK REED



THIRTEEN trucks are operated by the Home Telephone and Telegraph Company, Los Angeles, Cal. There are two 3000-lb., one two-ton and ten 1500-lb. vehicles. The latter are in service of drop gangs and installation crews, each normally employed in a certain assigned district. When trucks were put in service, districts were enlarged to double the work handled by horse and wagon. Each truck carries three men, the same crew as carried by each of the two wagons formerly necessary for the same district. That is, six men and two wagons were only the equivalent of three men with one truck.

Advantages obtained with the trucks include the ability to move a gang over to another district without loss of time, if work is slack in its own; to cover more ground per day in regular work; to give more satisfactory service in emergencies. With a wagon sometimes, in order to keep the crew employed, it was necessary to send them to another district; and if the part where there was plenty of work was at the other side of the city, a wagon would take half a day to get there, so that in many cases it would not be worth while to make the trip. With the truck they can get there in half an hour, and put in the rest of the day in useful work.

During the spring floods, trucks were employed to move men and materials when needed to restore service, or to strengthen pole lines so that they would resist the exceptional strain imposed by the weather. It was found that trucks would go any place that horses could go, and more quickly. In one case a 1500-lb. truck was piled up with a load of poles, which were carried 8 or 10 miles in a hurry. A team could not have gotten them to the destination in time to do any good. It was a bad thing to do to the truck, but it seemed to stand it all right and met the emergency.

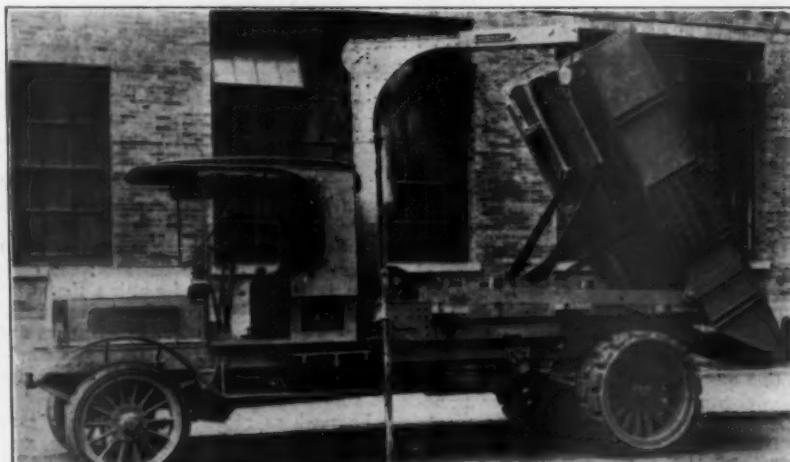
The 3000-lb. cars are principally used for carrying large loads of material from the main storeroom to the company's eleven branch exchanges, and to big buildings where work is under way; also construction material for outside work. They are not always loaded to full capacity, but there are plenty of times when the capacity is needed, so the size is fully justified. The two-ton truck is used a good deal on construction work, usually on work which is mapped out well in advance, and properly related to the capacity of the truck, so that a high degree of efficiency is obtained.

In all its work the company uses just one horse located in the downtown district where traffic is most congested, an area of seven by four blocks. It was found by trying a truck in this district that the consumption of gasoline and oil was high, in proportion to the mileage, so that it ran the cost up, and the congestion prevented them from obtaining a speed advantage which would compensate the unusual cost. So they went back to horse operation here.

The trucks are kept in a central garage, and mornings each chauffeur picks up his truck and reports at the job at 8 A. M. Sometimes the trucks take the men to the work and sometimes not. Material is picked up from the storeroom at the garage and from the company's offices through the city. If, while on the job, more material of any kind is required, the truck goes and gets it in a few minutes.

The company also uses pleasure cars for transportation of foremen and officials.

E. H. Warren Transfer Company, of Rockford, Ill., has installed a two-ton Jeffery "Quad" which, with two or three trailers, is expected to haul from twenty to thirty loads of coke per day. A man will be in charge of each trailer, who will discharge its load when the trailer is dropped off at its destination, the truck returning later to take up its empty trailers.



Mack Dumping Truck With Crane for Lifting Buckets of Sediment from Sewers



The Commercial Automobile and the War

By OUR FOREIGN CORRESPONDENT

NO one who was in Europe when the terrific catastrophe of war broke unexpectedly on it is likely to forget his experiences. The outlook of a single man may be changed of a sudden by a death or some such catastrophe in his life, but for the outlook of whole nations at a time to be changed in three or four days, as has been the case here, is without parallel. Everything is at sixes and sevens. Obviously, I am cut off from our Central European correspondents, while I am unable to communicate with our French, Belgian and Russian correspondents, who are presumably on military service. Therefore, I can tell you little of the movements in these countries. We only know that Germany has well over 1000 automobile trucks on active service, and has impressed well nigh every private car in the country, and that France has probably about the same number of trucks, besides many cars of all sorts, impressed for war service from the stocks of manufacturers. The German advance guard of the army invading neutral Luxembourg arrived on motor cycles, while 1500 troops arrived on the Belgian frontier by car. In Great Britain, at the time of writing, all the subvention lorries are being called up, and about 1000 of the chassis that have been carrying the omnibus bodies of the London General are being fitted with truck bodies for military transport. Fairly large numbers of buses and taxis are still running in London, despite many rumors that the government intended to commandeer all the bus chassis.

In Holland the motor ambulances have been very busy conveying German wounded from the neutral territory near battlefields of Liege to the hospital at Maastricht.

In France the military trials, which in their commencing stages have already been reported in these columns, were brought to an instant standstill, and the vehicles, commandeered for military service, were scattered to the four corners of the country.

The greater numbers, employed at much greater ranges and, consequently, over much greater stretches of country than in this over any former war, involves not only greater distances but greater transport requirements in every way—not only in food, but in ammunition.

The day before Great Britain's declaration of war, I was coming up from the

west country to London, a little run of some 120 miles. I had to pay 33 per cent. more than usual for gasoline (48 instead of 36 cents), and heard that farther down the road 60 and 72 cents a gallon was being charged. These fancy prices, however, it turned out, were not due to any lack of supply, but to the cautious behavior of many motorists who, as soon as they scented a possibility of war, at once laid in large stocks. This meant a scarcity of cans. The gasoline companies did not put the price up, though the retailers did, partly owing to the difficulty of getting any delivery, for the government were sealing up every known bulk store, and the shortage of cans prevented the supplying companies from providing the retailers. At one garage I was quoted 42 cents a gallon delivered into my car tank, but \$1.80 a gallon with cans. At the time of writing, however, there is no lack of gasoline supply, because not only is Great Britain's own supply uninterrupted, but she has also Germany's as well.

The number of motor omnibuses in London are speedily getting fewer as cars and drivers are called up for service. At present we believe there are fewer drivers left than there are cars. Many of the London General buses have been seen in Belgium, some even in the streets of Liege before the Germans entered the town.

All European commercial truck factories, except those in Italy and Britain, are closed down, but it looks as if the war would not affect the mercantile automobile business in these two countries at all badly, for so many cars have been impressed into service that a big demand is certain to be set up. Also, the tremendous shortage of horses promises to drive many firms to motor transport even in the immediate future.

War does not appear to have had as much effect on business in Great Britain as was expected. The present demand for men for military service has left much employment in civilian business; the difficulty is rather one of putting the right men on the right jobs. In the meantime business is being continued and prices are remaining fairly normal. Over the whole continent of Europe, however, things are of course at an absolute standstill.

Everywhere along the roads one sees military motor cyclists tearing along, and for them, as for cars on active service, all speed limits appear to be abolished. Some-

times the way is cleared for them by the police to tear at full speed through the area where the legal rate is ten miles an hour.

Drivers, fitters and mechanics are being enrolled for service in the British Army in large numbers.

The British Army authorities are requisitioning manufacturers' stocks of automobile trucks. While many British firms have lost the services of their drivers who have been called away by the war, others have lost the services of their trucks which have been requisitioned. Accordingly, exchanges have been opened for putting those who are with trucks, but no drivers, into touch with those who have drivers but no trucks.

Although the fog of war surrounds everything, there is good reason to believe that Germany has called up practically every car in the country. The war has everywhere caused a great scarcity of horses of all sorts, consequently high prices are ruling.

CONVERTED 'BUSES FOR MUNICIPAL WORK

An interesting development in the business of the Motor Omnibus Department of the County Borough of Eastbourne serves to indicate a means by which public service companies and municipalities operating motor omnibuses in urban districts might increase their profits and at the same time make good use of some of their older machines. The omnibus fleet of Eastbourne, England, consists of twenty-six vehicles, many of which have been on the road for seven or eight years. Since the year 1908 the department has always been successful in showing a profit, and the results of the last financial year, which have just been published, reveal the substantial margin of \$11,589, after all charges, including interest and repayment of loans and instalments of 'buses purchased out of revenue have been made. This excellent result is, to a considerable degree, attributable to the fact that three of the old 'buses no longer found completely suitable for public service work have been converted into municipal vehicles and hired to the Eastbourne Highways Department. The chassis of these vehicles are German-Daimlers of the omnibus type supplied ten years ago. One has been fitted as a lorry and

flushing van, and the other two have been converted into motor dust carts. The accounts do not state separately the running cost of these vehicles, but the costs of operation of the whole fleet exclusive of interest and instalments comes out at \$.207 per mile. Tires have cost \$.028 per mile, as compared with \$.031 during the previous year. On the other hand, the cost of fuel has gone up from \$.038 to \$.042. Repairs and maintenance show an improvement from \$.064 to \$.055 per mile. The experiment of putting some of the old vehicles into the service of the Highways Department was tried about two and a half years ago. The first year these vehicles earned \$1463. It is clear that the experiment has been successful and the good work of the lorry and dust carts is indicated by the fact that during the last financial year the Highways Department have felt justified in spending \$3561 on the hiring of these machines. It is probable that in many towns in which motor omnibuses are operated, municipal authorities would be well advised to hire from the operating company suitable vehicles for street watering and sweeping and the collection of household refuse rather than to employ their own machines for the purpose.

A CHEAP SELF-CONTAINED QUICK-LOADING ARRANGEMENT

THE importance of rapid-loading facilities that involve a minimum of capital outlay has been more fully realized in America than in Europe, but it is beginning to be realized in Europe, and a suggestion made by M. Brillé at the recent Paris meeting of the British Institution of Mechanical Engineers is particularly well worth attention on account of its simplicity. The accompanying cut shows the details.

The frame of the body platform A is mounted so as to tilt on a fulcrum at the end of the chassis frame, the front end resting on brackets B, when in the normal horizontal position. When this pivoted frame is tilted, its rear end rests on a trestle C, secured in position relative to the chassis by hooks D, so that the body frame and trestles form an extended inclined plane up which the loaded body F on rollers can be drawn by wire rope G and tackle H K L, worked by the engine of the truck. In this particular instance the hauling gear is actuated by a capstan E from two bevel wheels driven by a chain off the front end of the change speed gear lay shaft, the driving sprocket of the chain being thrown into engagement when required by a lever, worked by a dog clutch. On the capstan a safety ratchet is, of course, fitted to prevent the load running back in the event of the driving chain breaking, or the clutch being disengaged.

breaking, or the clutch being disengaged.

While readers of the *Commercial Car Journal* may consider—possibly rightly—that this arrangement may be bettered in its details, there is no doubt about the root idea being excellent in providing a cheap, simple and self-contained method of loading.

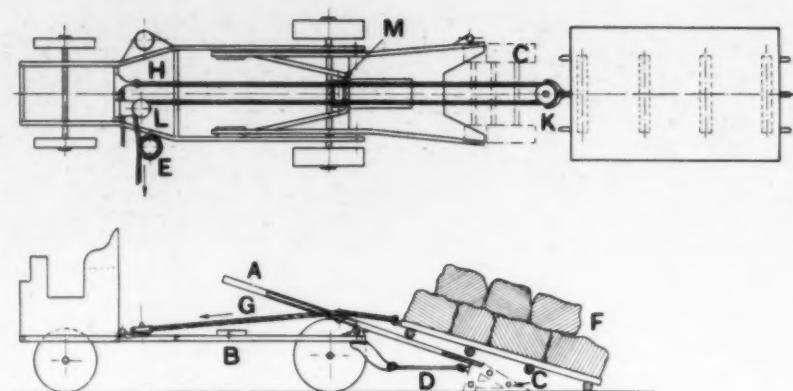


Diagram of European Quick Loading Arrangement

HORSE PATIENTS*

Fifteen thousand horses died in New York City last year. One thousand and twenty-seven, three hundred of which were taken to hospitals, were removed from the streets in ambulances for treatment. Thousands more were treated by veterinaries in stables throughout the city. The value of the horses that died has been placed at \$3,-100,000. The value of the time lost by those that were sick is incalculable. An estimate would depend entirely on the imagination of the estimator. The fact remains, though, that the services of a horse are worth not less than \$2 a day. Let us assume that each of the 300 horses taken to the hospital was laid up for one week—that represents 2100 days at \$2 a day. Still assuming, let us place the number of horses treated at their own stables at ten times the number removed in ambulances—that's 10,270. If they averaged 3 days each, the total time lost would be 30,810 days.

In other words, sick horses represent a loss of 32,810 days or \$65,620. Add to this the value of the horses that died and the commercial loss in horseflesh for 1913 approximates three and a quarter million dollars. Nor does this include the cost of restoring sick horses to health—a factor which in itself is no small item, while the economic loss, due to delayed traffic, is certainly beyond calculation and almost beyond comprehension.

The removal of dead horses is a matter attended to by the Department of Health. The care of sick horses devolves upon the veterinaries of the city, while emergency relief is rendered by an ambulance service that follows closely in organization that of any hospital.

This emergency service is maintained by The American Society for the Prevention of Cruelty to Animals. Its ambulances cover the city and hospitals have been established in Manhattan and Brooklyn. The present ambulance equipment of the society consists of seven vehicles. Five of these are horse-drawn, one is a storage battery electric and the other is a gas electric. This last, however, is to be remodeled and equipped with a storage battery, so that eventually the equipment will consist of two electrics and five horse-drawn ambu-

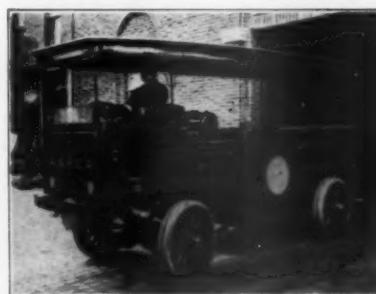
lances, designed to carry horses and large animals. In addition to these there are compartment ambulances for cats and dogs.

Forty Years Ago

The service was inaugurated more than 40 years ago, and the present hospital in Manhattan was opened in October, 1912. Calls for emergency relief for sick horses are sent in very much as are those for sick people. In the case of humans, however, the call goes to police headquarters first. For animals the call goes direct to the headquarters of the society. An automobile brings a veterinary, who, if the case warrants, sends for the ambulance.

For convenience in picking up sick animals the ambulances are equipped with a bottom board or stretcher which is rolled down the inclined tail-board to the street. The animal is strapped to this and then by means of a winch and a cable attached to the board is drawn into the vehicle. In the case of the electrics, this winch is operated by power from the storage batteries.

The society's new ambulance was built by the Commercial Truck Company and was placed in service last spring. The body is mounted on a two-ton chassis of special design, the rear axle being dropped so that the ambulance body is close to the ground. The battery is carried on the



The Motor Ambulance of the A.S.P.C.A.
A necessity in this day of sick horses. The Society has sent emergency relief to as many as fifty-five horses in a single day.

frame over the front wheel, and the vehicle is driven by motors mounted on the forward axle. The ambulance has a speed of 14 m.p.h., and has covered 40 miles on a single charge. Its longest emergency call required a round trip of 32 miles.

*From the September "Edison Monthly."



The Cass Model "E" One and a Half Ton Truck

THE Independent Motors Company, of Port Huron, Mich., is building a one and a half ton truck known as the Cass Model "E." The Independent Motors Company is a re-organization of the Cass Motor Truck Company with new men in the organization.

The Cass Model "E" is designed particularly for the medium duty field, and its makers claim for it unusual efficiency and the advantages of highly specialized construction.

Motor

The motor is of Continental make, L-head type. It is especially designed for truck use and develops over 27 h.p. S. A. E. rating and 40 h.p. at approximately 1500 r.p.m. There are four cylinders of $3\frac{3}{4}$ -in. bore by $5\frac{1}{4}$ -in. stroke, cast en bloc from a special grade of reverberatory air furnace iron, carefully ground to a mirror finish and exact size. The water jacket heads are cast separately, permitting better workmanship in the cylinder cores, and the water jackets are cleaned by a special process, absolutely insuring the removal of all fins, core sand, core wires, and other foreign matter, and securing a clean passage.

Crank case and oil pan are both aluminum castings and made separate. The three long bearings of bronze, lined with babbitt are carried in the crank case and are easily accessible by removing the oil pan. The crank shaft is made of special crank shaft steel, drop forged and heat treated, and has a tensile strength of 90,000 lbs. per sq. in. Both intake and ex-

haust valves are operated by one cam shaft, drop forged from a single piece of low carbon steel with cams integral. The cam shaft is easily accessible, and may be readily withdrawn by simply removing the gear case cover.

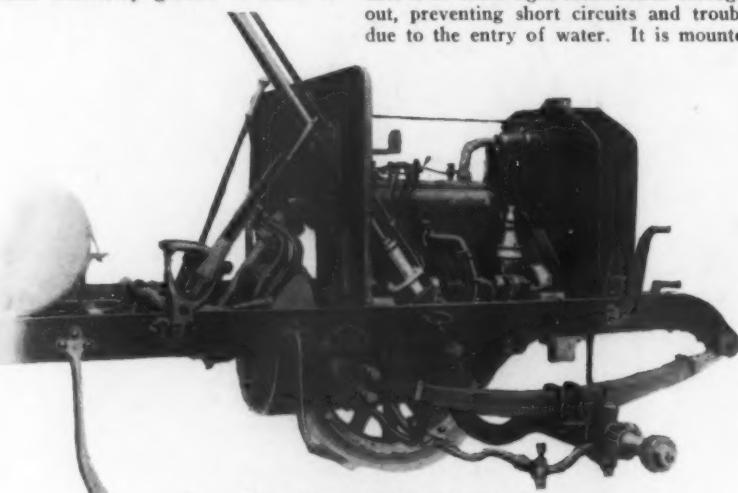
The valves are of generous size and completely enclosed, protecting them from dirt. Inlet and exhaust valves are interchangeable, and have nickel steel stems, with seats and stems accurately ground to size. A

Zephyr carburetor is used, with $1\frac{1}{4}$ -in. intake, hot air feed and dash regulator.

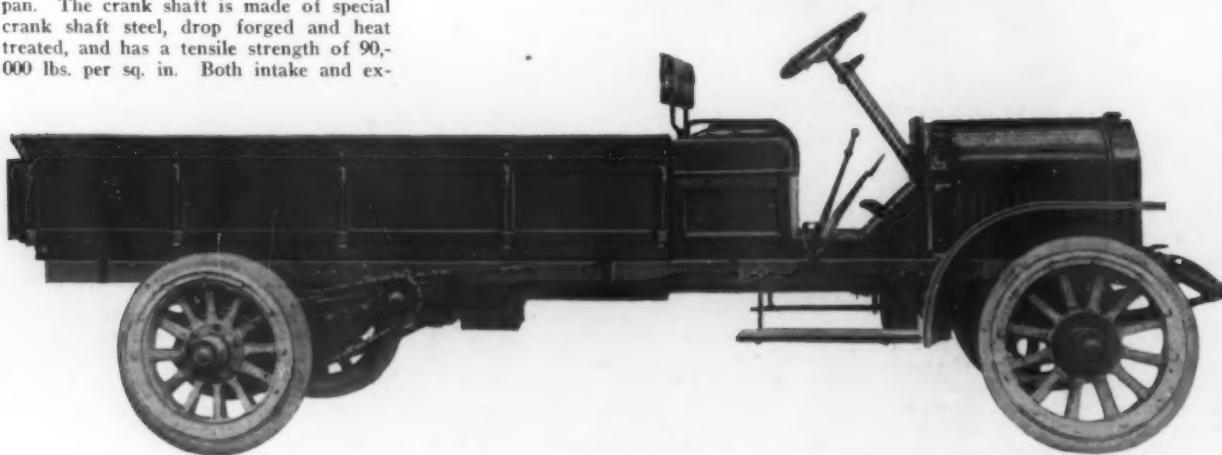
The motor is equipped with a centrifugal governor which can be set at any maximum speed, effectively preventing racing and damage from careless or ignorant driving.

Ignition, Cooling and Lubrication

Ignition is by single system, employing a Mea high-tension magneto. The magneto is of water tight construction throughout, preventing short circuits and trouble due to the entry of water. It is mounted



Front Axle of Cass Model "E" Truck
Showing front spring construction and steering gear



Cass Model "E" Chassis

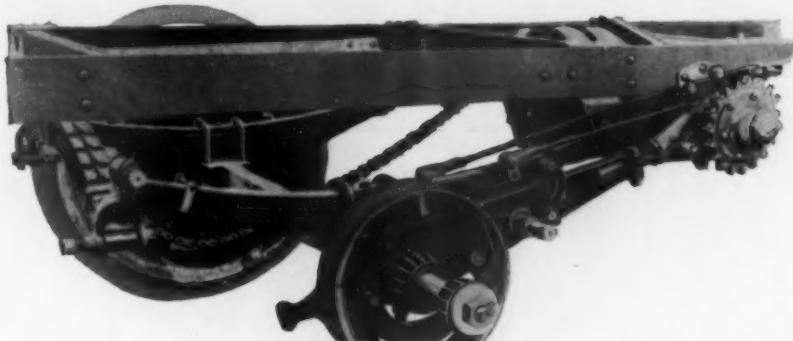
Made by Independent Motors Company. Has 144 in. wheelbase and is designed particularly for the medium-duty field.
Motor 27 h.p., four cylinders, $3\frac{3}{4} \times 5\frac{1}{4}$ in.

at the right of the motor, and driven by the water pump shaft.

Lubrication is force feed, constant level system, effected by a double vertical plunger pump, which forces oil direct to the timing gears and over the rear main bearings. From these points the oil drains back to the oil pan, where the proper level is maintained for the lubrication of pistons connecting rods, cam shaft bearings and middle crank shaft bearing by splash. An accessible gauge shows the level of the oil in the crank case.

The cooling system comprises a circulating pump and auxiliary fan. The radiator

and $\frac{3}{4}$ -in. diameter connect the jack shaft with the rear wheels. The transmission is Brown-Lipe, sliding gear selective type, with three speeds forward and reverse. Control is by spark and throttle levers on the steering column and foot accelerator within the limits of the governor. Change speed and emergency brake levers are at the right of the driver, and clutch and service brakes are operated by pedals. Steering gear is Ross screw and nut type. Transmission and jack shaft form one unit, and all gears are of chrome nickel steel with stub teeth.



Rear Axle of Cass Model "E" Truck
Showing rear spring construction and Sheldon rear axle, brakes and jack shaft

is of cellular type with a capacity of 7 gallons, and is flexibly mounted on a trunnion working in two directions to compensate for any distortion of the frame.

Clutch, Drive and Transmission

The clutch is a cone of pressed steel faced with leather, $1\frac{3}{4}$ in. in diameter and $2\frac{1}{8}$ in. wide. It is fitted with a brake to prevent spinning after disengagement and facilitate gear changing. The drive is straight, line type, by propeller shaft to transmission through double universal joints. Double side chains running on hardened steel sprockets of $1\frac{1}{4}$ -in. pitch

Jack Shaft, Axles and Brakes

A semi-floating jack shaft of Sheldon make is used. Differential and driving shafts are mounted on annular ball bearings, and the differential housing has removable hand hole cover, giving access to inspection of gears.

Sheldon axles are used, both front and rear. The front axle is a one-piece, drop forged I-beam section, with spring pads forged integral, and is double heat treated after leaving the forge hammers. Steering knuckles and steering levers are drop forgings of chrome nickel steel, double heat

treated. Spindles are $1\frac{31}{32}$ in. in diameter, fitted with standard adjustable taper roller bearings. The rear axle is a one-piece, drop-forged rectangular section, $1\frac{1}{4}$ by $2\frac{3}{4}$ in. with $2\frac{1}{8}$ in. diameter spindles, and it also is double heat treated and fitted with standard adjustable taper roller bearings.

The brakes are Sheldon, of the internal expanding and external contracting type, and both service and emergency brakes are located on the rear wheels conforming to the United States government standard for its army trucks. The brake drums are 14 inch. in diameter with a $2\frac{1}{2}$ in. width of brake band.

Frame, Springs and Wheels

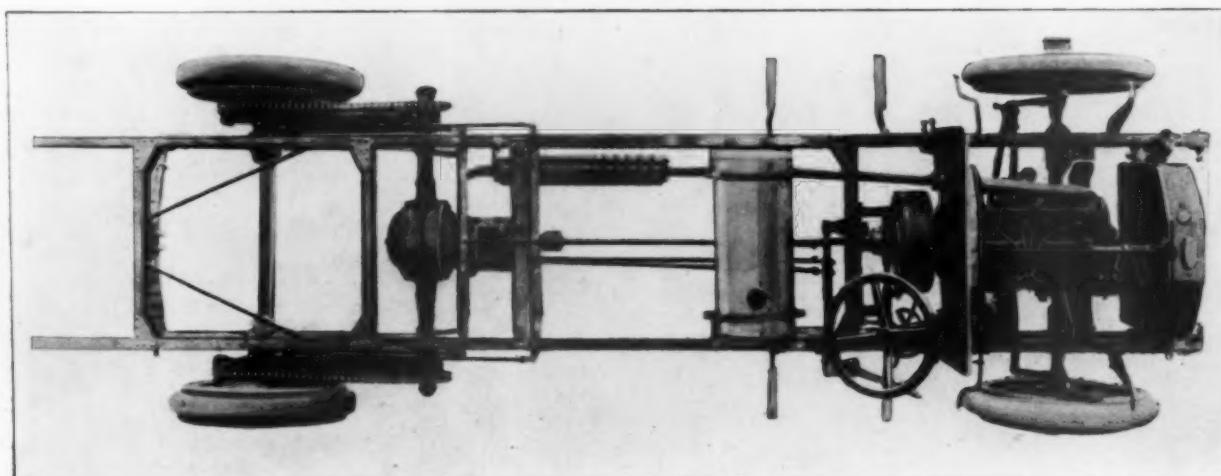
The frame is 4-in., $7\frac{1}{4}$ -lb. rolled-steel channel section, hot riveted and stiffened by gusset plates and angles at the corners. The height from the ground is $28\frac{1}{2}$ in. with a two-ton load, and the road clearance of the truck is $10\frac{1}{2}$ in. The springs are semi-elliptic front, $2\frac{1}{4}$ in. wide by 47 in. long, ribbed, and platform rear, with side springs $2\frac{1}{4}$ in. wide by 40 in. long and cross spring $2\frac{1}{4}$ in. wide by 36 in. long, ribbed. The wheels are heavy artillery type with twelve 2-in. rectangular spokes, and tires are solid rubber, demountable, front 36 by $3\frac{1}{2}$ and rear 36 by 4. The wheel base is 122 in. minimum, 144 in. maximum.

The gas tank is under the driver's seat, and has a capacity of 18 gallons. The weight of the chassis is 4000 lbs, and loading space back of the seat is 96 in. minimum and 120 in. maximum. Three oil lamps, horn and kit of tools are furnished with the truck.

The price of chassis is \$1850, with body optional and extra.

Through a mistake, the truck of the Krebs Commercial Car Company, Clyde, Ohio, was described in our July issue as being worm driven, whereas, it should have been chain driven.

Los Angeles County Supervisors have bought two five-ton motor trucks—platform truck—for \$3425 and a dump truck for \$3840.



Bird's-Eye View of Cass Model "E" Chassis
Showing disposition of various components. Note the well-braced frame, cross pieces being reinforced with gussets and the two radial braces at the rear

Brasie Features Two Models and a Trailer



THE Brasie Motor Car Company, 2743-5 Lyndale Avenue, Minneapolis, Minn., which was incorporated August 1, 1914, and took over the business of the Brasie Motor Truck Company, is capitalized at \$100,000, and is featuring two-truck models and a trailer.

The Brasie Two-Ton Truck

The Brasie (Twin City) truck has been on the market for four years, and is in use in nearly every branch of motor truck service. The past models have proven to be very substantial and have given very satisfactory service.

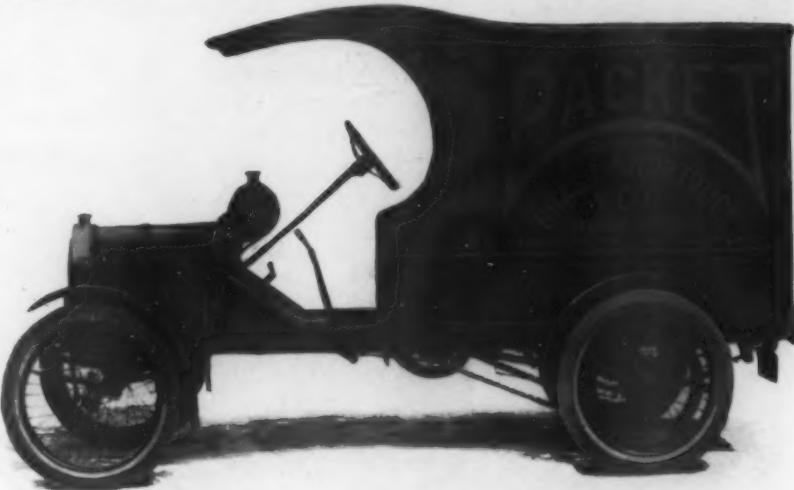
Heretofore these cars have been equipped exclusively with two-cylinder opposed motors, but the 1915 models are offered in two types—one with a two-cylinder opposed 30-h.p. motor and one with a four-cylinder 30 h.p. motor. The well-known Continental motor is used in the latter. The two-cylinder model is of the four-cycle type, water-cooled, and has a bore of 5 in. and a stroke of 5 in. The four-cylinder Continental motor is \$100 extra. A Schebler 1½-in. carburetor is used, and ignition is by a K.W. magneto. The gasoline tank, having a capacity of 10 gallons, is located on the dash, and the contents of the tank is indicated by a dash gasoline gage. Oiling is effected by a Detroit lubricator, having eight sight feeds.

The front axle is of I-beam section, 1½x2½ in., the rear being rectangular,

drop-forged, 134x2¾ in. The guaranteed carrying capacity of the front axle is 5440 lbs., and of the rear axle 8800 lbs. This gives a capacity of double the requirements under a two-ton load.

Every moving part of the machine is provided with a hard oil grease cup, there being forty on the complete assembly.

The loading space is 10 ft. x 4 ft., wheelbase 104 in., tread 56 in., road clear-



The Brasie Quick Delivery Packet Car

With a carrying capacity of four hundred pounds and listed at \$400. Has a four-cylinder water-cooled motor; 96 in. wheelbase; 44 in. tread; friction transmission; left drive, and solid steel axles

The springs are semielliptic, both front and rear, the former being 42x2½ in., and the latter 48x2½ in.

The frame is 4-in. channel steel.

Two sets of brakes are provided, the service or foot brakes being placed on the jack shaft, with 10x2-in. drums, and the emergency or hand brakes being on the rear wheels, with 14x3-in. drums.

The wheels are of the artillery type, with 34x3-in. tires in front and 36x3½-in. in rear, both solid rubber.

Drive is by Whitney detachable 3/4x3/4x 1½-in. chain.

The steering gear is of Ross make, irreversible nut and screw type, and steering and control are on the right side.

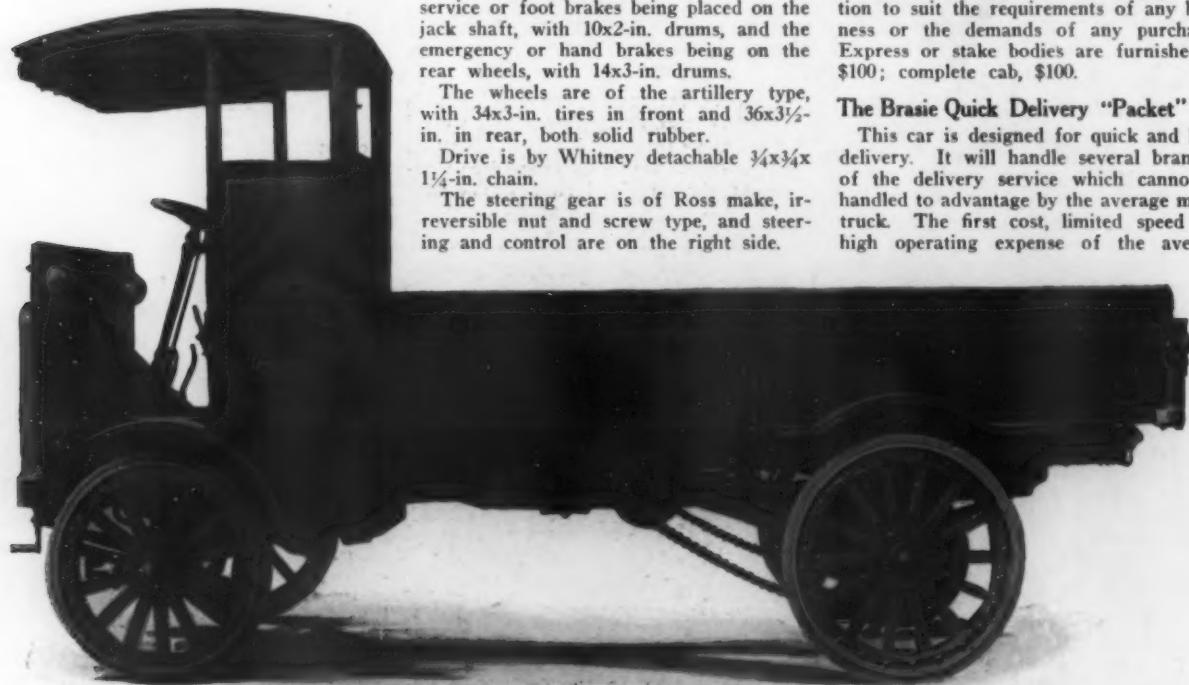
ance 10 in. and chassis weight 3000 lbs.

The price of the complete chassis is \$1350, or \$1450 with four-cylinder motor.

The firm has its own body factory and is prepared to build bodies of any description to suit the requirements of any business or the demands of any purchaser. Express or stake bodies are furnished at \$100; complete cab, \$100.

The Brasie Quick Delivery "Packet" Car

This car is designed for quick and light delivery. It will handle several branches of the delivery service which cannot be handled to advantage by the average motor truck. The first cost, limited speed and high operating expense of the average



The Brasie Two-Ton Truck

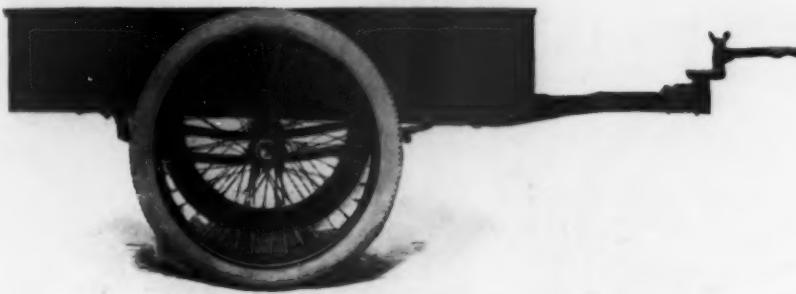
Now made by the Brasie Motor Car Company, and selling for \$1350 with two-cylinder motor, or \$1450 with four-cylinder Continental motor. Wheelbase 104 in.; tread 56 in.; Ross steering gear; Whitney chain drive, and other features

motor truck prohibits its use in the light delivery field. The "Packet" Quick Delivery will carry 400-lbs., at a good speed—much greater speed than can be obtained by a heavy truck. The fuel consumption is exceedingly low, making it a most economical means of conveyance.

The motor is a four-cylinder, water-cooled unit, with a bore of $2\frac{1}{2}$ in. and a stroke of 4 in., rated at 20 h.p. Car-

The body, as regularly furnished, is 43 in. wide, 52 in. long and 9 in. deep. It has a hardwood bottom and is reinforced at the corners. Special bodies will be built to order.

The springs are semielliptic, 36x1 $\frac{1}{2}$ in., of high quality steel. The axle is 1 $\frac{1}{4}$ -in. round steel stock, solid. Wire wheels revolve on ball bearings, and are fitted with



The Brasie Trailer

Made to fit any standard automobile and designed to carry a load of four hundred pounds. Fitted with pneumatic tires and efficient springs. Price, \$75

buretion is by a Mayer carburetor, and ignition by means of a high-tension magneto. The fuel tank is situated on the dash, and lubrication is by a mechanical pump and splash system. The oil reservoir has a capacity sufficient for at least 400 miles.

Both front and rear axles are dropped 3 $\frac{1}{2}$ in. to bring the load nearer the ground. Springs are semielliptic, front and rear. The frame is of 3-in. channel steel, and the brakes are internal expanding, on an 8-in. drum, a ratchet being provided on the brake pedal. The wheels revolve on ball bearings, and are fitted with 28x3-in. clincher tires all around.

The transmission is a friction disc type, final drive being by V-belt. The disc is 12 in. in diameter, the fiber wheel being 15 in. The belt is 1 $\frac{1}{4}$ in. The weight of the car is 900 lbs.

Wheelbase is 96 in., tread 44 in., loading space 28 $\frac{1}{2}$ in. wide, 51 $\frac{1}{2}$ in. long, 48 in. high, and road clearance 9 in.

Drive and control are on the left side.

Electric lights and electric horn are supplied by a storage battery.

The price complete is \$400.

The Brasie Trailer

The Brasie Trailer is made to fit any standard make of automobile, but is particularly adapted to light cars. It is designed to carry a load up to 400 lbs. in weight, and at a lively pace on fair roads. Pneumatic tires and efficient spring suspension reduces the jolts and vibrations to a minimum.

The trailer may be attached to car or detached in less than one minute. A special bracket is fitted to the frame of the automobile and remains there when trailer is detached. This bracket is neat in design and hardly noticeable, so that there is no objection to its being permanently attached under the frame of the machine. After this bracket is in place the trailer may be attached and detached without the use of tools.

THE MISSION, A LOS ANGELES-BUILT DELIVERY CAR

By C. L. EDHOLM



Los Angeles is coming to the front as a manufacturing center for commercial cars, as well as one of the best markets for motor vehicles in the United States. The latest arrival is the Mission, a 1000-lb. delivery car, built for retail firms, grocers, laundries, etc. In this line of work, speed is an important factor, and the Mission meets that demand, while economy of operation, durability and the ability to take hills or sand roads, all make it a good all around car for the average small merchant.

A feature of the Mission service plan that will make it unusually popular with the dealer who has only one car, is the contract which the company is willing to make to take complete care of the machine for a stated sum, usually \$50 a month. This includes repairs, large or small, gas and oil, tires and garage space, so that the small retailer who is making his first experiment with auto delivery has no worries about caring for the machine or any uncertainty as to what the running expense will be.

The Mission factory in Los Angeles is employing fifty men and has a capacity of five cars a day, and has already won a place for itself in the southwest. In the recent road run and reliability test from Los Angeles to Riverside, it made an excellent showing in competition with well-known makes.

The illustration shows the little car on a 30 per cent. grade near Los Angeles. The specifications for the 1915 model are as follows:

Motor

The motor is a specially built T-head four-cylinder, four-cycle unit, 22 h.p.; bore, 3 $\frac{1}{2}$ in.; stroke 4 in. Drop forged crank shaft



The Fifteen Hundred Pound Mission Truck

Ascending a thirty per cent grade with full load. This car is a new western make, and sells for \$850

with very large bearings, $1\frac{3}{4}$ in. diameter and 4 in. long in front and $4\frac{1}{4}$ in. in rear. Connecting rod bearings, $1\frac{3}{4}$ in. diameter, $2\frac{1}{2}$ in. long. Cam shaft bearings, $\frac{7}{8}$ in. diameter and same lengths as crank shaft bearings. Noiseless, self-lubricated bronze and fiber timing gears. Double piston rings. Anti-smoking device incorporated in pistons. Combination splash and pump operated force feed lubrication; 2-in. diameter exhaust manifold. Bronze centrifugal water pump connected to magneto shaft. Ball bearing fan driven by adjustable belt from crank shaft. Motor guaranteed to keep cool under hardest pulling. Water pump, water manifolds and plates and gas intake manifold all of bronze.

Splitdorf High Tension Magneto: Water and oil proof. Mounted on base cast on crank shaft. Drive through silent leather and steel joint of internal spur gear type.

Steering Gear

Steering Gear: Worm and full gear type; 16-in. wheel placed on left side of car. Ball and socket steering connections, easily adjustable for wear. Fitted with ball bearing thrusts on each end of worm. No controls on steering post.

Clutch and Transmission

Clutch: Leather faced inverted cone clutch. Ball bearing thrusts on spring. Operated by left foot pedal. Ball bearing throwout against clutch spring. Leverage of eight to one from foot pedal to clutch, allowing light pressure on pedal and easy engagement of clutch. Double universal joints between clutch and transmission.

Transmission: Three speeds forward and reverse. Selective sliding gear type, on high duty roller bearings. Central control lever and emergency brake built integral countershaft and reverse idler in bottom of case, entirely submerged in oil; $\frac{3}{4}$ -in. face stub tooth. All shafts and gears carefully hardened and ground. Direct drive on high gear. Extra low ratio on low and reverse gears.

Axes, Frames and Springs

Axes: Rear axles four to one gear ratio; $1\frac{1}{4}$ -in. chrome nickel driving shaft. Large gears. Ball bearings, $\frac{5}{8}$ -in. ball. Brakes 14 in. in diameter by 2 in. wide, internal expanding. Cover of rear axle housing removable from rear, for inspection and oiling. Front axle drop forged I-beam. Hardened bolts etc. Front hubs are all ball bearings. Grease and oil cups provided at every wearing point. Single set of expanding brakes on rear wheels, operated by hand lever on top of transmission. Foot pedal operated brakes rear of transmission give the best service and are much easier and more economical to keep in good condition.

Frame: Laminated wood. Stronger and lighter than steel; $1\frac{3}{4}$ in. wide, of selected Eastern Ash, glued and screwed together under high pressure.

Springs: Hung underneath axles. "Underslung." The easiest riding construction in the world. Front full elliptic, $1\frac{3}{4}$ in. wide, five leaves. Rear full elliptic, six leaves 2 in. wide "scroll."

Other Details

Wheelbase: 116 in. Wheels and Tires: Firestone Tires $31 \times 3\frac{1}{2}$ in., heavy hickory spokes, twelve to each wheel; $6\frac{1}{2}$ -in. hub

flange. Weight: 1700 lbs. Gasoline Tank: On dash under hood. Holds $4\frac{1}{2}$ gallons. Fitted with overflow tube. Certain gasoline feed. Filter with drain at bottom of tank and at carburetor.

Equipment: Two headlights. Two side lamps. Tail light. Prest-O-Lite tank. Horn. Jack. Tool Kit. Tire Repair outfit. Pump, etc.

Price: Chassis only, \$850 f.o.b. Los Angeles.

Bodies: Open express body 3 ft. 6 in. by 5 ft. 6 in. floor space, hinged tail gate, substantially ironed and well painted to match chassis, \$40. Covered panel body, 3 ft. 6 in. by 5 ft. 6 in. floor space and 4 ft. 6 in. high inside, strongly built with curved sides, roof and back. Double doors in back with oval windows, non-rattling sides. Well ironed. Painted to match chassis, \$75.



B. A. Gramm One-Tonner, Used as a 'Bus in Zamboanga, P. I.

Operated by Patrick H. Frank, of the above city. Passengers are natives and Chinese. Four seats, each seating five persons. Driver is a native, the conductor a Chinaman; the antipathy of the two classes insuring correct returns and preventing any splitting of proceeds between them. An interesting feature is seen in the box and coil of wire at the driver's left, this being a field telephone, with which the driver while on his route can get into instant communication with the owner at any time.



Willys-Utility Truck Used by British Army

Several Willys-Utility trucks recently purchased by the British government for army use have been converted into carryalls for soldiers, by the simple addition of longitudinal seats on each side of the standard truck bodies. Waterproof curtains, which can be rolled up and fastened at the top, have been provided for protection from the elements. In addition to serving as passenger vehicles, the trucks are utilized by the commissary department for hauling supplies.

MANY MOTOR CARS TRANSPORT FREIGHT

NO MORE striking instance of what can be done in the way of efficient motor truck transportation has been shown recently than that of a fleet of trucks operating out of Portland, Ore. It is also a unique case of co-operation among a number of private owners with a desire to benefit each other and also to improve and hasten the service.

For the past six months or so there has been one or more trucks operating on various routes out of the city. When business people began to find that they could send merchandise by those trucks efficiently and cheaply, naturally the truck owners began to have a good deal on their hands. Each did his level best to get the orders and to deliver goods, with the result that the service was impaired on one route in order to carry out some order on another.

Then these men began to see that the best way of all to do the business for their own good and for that of the business men in the city and without was to get together and work out some scheme whereby all the routes were covered at a regular schedule and each received his quota of business.

The actual start was with one Reo truck, July, 1913. To-day there are 13 on the various roads and four more will soon be added, making a total of 17. The first truck gave such good service that the whole fleet is made up of Reos all purchased from the local distributors, C. L. Boss & Co.

There are in all seven divisions of the Reo Inter-City Truck Service, the Oregon City, Warren, Troutdale, Gresham, Tigard, St. Johns and the Oregon-Washington division.

Three trucks run daily to Oregon City, calling at Oswego, Willamette, Canemah, Clackamas, Milwaukee, Oak Grove, Jennings Lodge, Gladstone and Park Place. In addition one truck, on Thursdays, calls at Beaver Creek and Massinger's Corner,

while on Wednesdays and Saturdays they call at Clear Creek and Baker's Bridge.

The distance to Oregon City is 14 miles, the round trip therefore close on 30, and the trucks average two trips a day, taking all the routes into consideration. They have their regular schedule of starting, calling and delivery times, and these they keep almost exactly, a great tribute to the mechanical perfection of the trucks.

The Warren division (26 miles the single

one lot and then segregates the material for each route. In this way, for instance, if anything has to be brought from Oregon City to Gresham, the man on the first route brings it into the city and it goes out on its destination on the second route. There is a minimum delay, and what is more, in the majority of cases the material goes direct from the seller to the purchaser by truck without numerous charges for freight, recharging and then delivery.



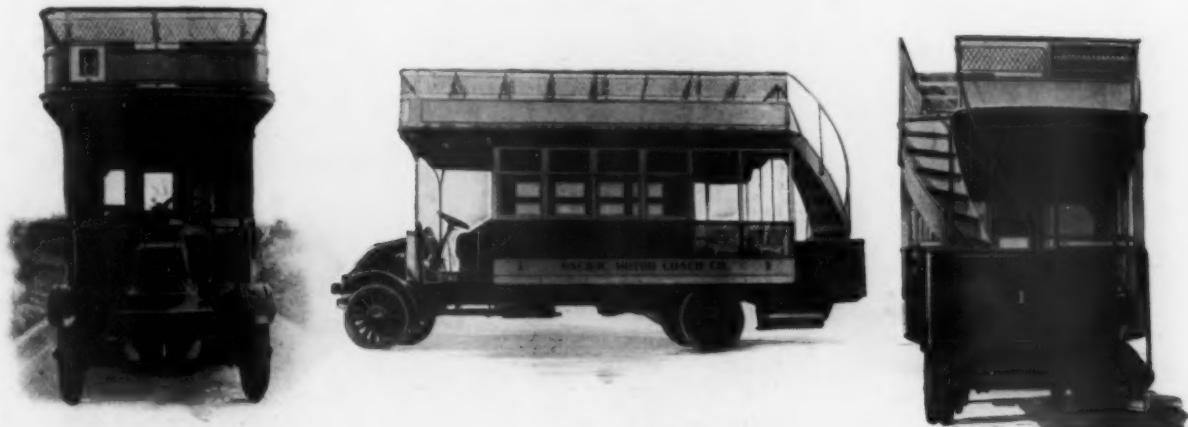
Reo Used in Truck Service Around Portland

trip) runs one truck daily, calling at Holbrook, Linnton and Scappoose as well as Warren; the Troutdale section has two trucks a day, the Gresham one, the Tigard one, calling at Garden Home, Shaddock, Multnomah, Tigard and Bertha; St. Johns division has two a day, calling at Kenton, Portsmouth and St. Johns, and the Oregon-Washington two trucks. This route comes from Beaverton and Sylvan, through town to Vancouver, Wash., and Orchards. In addition there is a truck kept ready for any emergency and the men interested hope shortly to put on four more on each of two routes.

There is a central distributing station at 247 Ash Street, where a man in charge takes all the packages, food stuffs and material that is sent in, receipts for it all in

The directness of the service, the number of trips a day and the rates charged show just what an efficient service of motor trucks can accomplish in the way of successful direct competition with steamship, electric and railroad transportation. If it were not such a success the number of trucks would not have increased so rapidly. On the majority of routes there is direct competition of at least two sorts, on some all three.

It is also a great lesson in what co-operation will do between a number of competing individuals, for, had they not united in their efforts, each would have been covering too large an area and would not have been giving the efficient service that they are doing to-day.



A Kelly-Springfield Motor 'Bus Line

Three views of a Kelly-Springfield motor 'bus which will be used by the Pacific Motor Coach Company, of Los Angeles, Cal. The 'bus line will operate between Los Angeles and several nearby cities. It is expected that this same line will have the concession for motor transportation within the grounds of the Panama-Pacific Exposition. The 'buses are mounted on model K-40, 3½ ton chassis, equipped with 6 in. dual tires in the rear. The speed will be 20 m.p.h., and seating capacity is 54 persons.



Combination Ambulance and Invalid Carriage

Made by the Brown Auto Carriage Company, of Cleveland, Ohio. The inside is equipped in a modern and efficient manner. There are compartments for medicine and bandages, suspended stretcher and sliding cot, two caned seats, etc. Lighting is by electricity, and the floor is covered with battleship linoleum.



Trucks for Hauling Lumber

Huffman Brothers, of Youngstown, Ohio, is another lumber company whose experience has shown that motor trucks are highly preferable to teams in long-haul work, to say nothing of their adaptability for lumber hauling of a short-haul routine nature. The company operates a planing mill and sawmill two miles east of Canfield, Ohio, which is eight miles from Youngstown. A typical example of the work of a three-ton White truck drawing a trailer is 3,260 feet of green hickory, weighing approximately nine tons. This haul was made at a time when the roads between Canfield and Youngstown were covered with three inches of snow and ice, and it is not an unusual task for the truck under ordinary conditions. The trailers are employed, not for the express purpose of increasing the tonnage capacity of the equipment, but to facilitate the handling of extremely long pieces of lumber. The truck has been in service for fourteen months without any repair expense and at an operative cost that has been highly satisfactory to the owners.



Exterior of the Brill 'Bus Body

Made by J. G. Brill Company, Philadelphia, Pa., and mounted on a five-ton Saurer chassis. The seating capacity is thirty-one, standing capacity, nineteen. The entrance for passengers is through the rear door, operated by the conductor, and exit through the front door, operated by the driver. Of course, during the quiet hours of the day, when the number of passengers is not large, the rear door may be locked and the bus operated as a one-man prepayment bus, by the driver. Both steps are operated in conjunction with the doors.



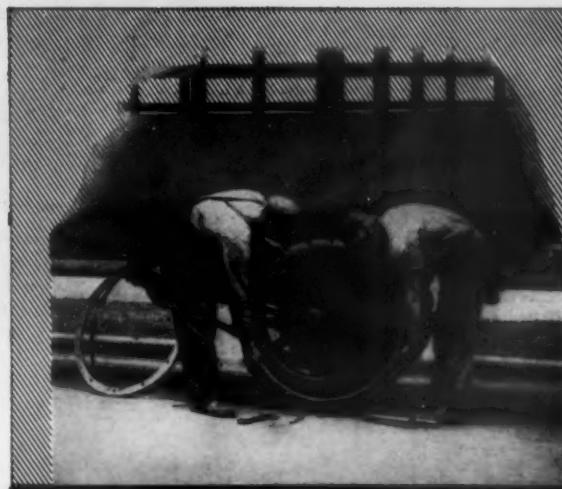
Interior of Brill 'Bus Body

Mounted on a five-ton Saurer chassis; for use in Miami, Florida. Another illustration shows an exterior view of the car.

In Pendleton, Ore., motor bus service will be substituted for the street car system.

Providence, R. I., is to have a motor truck for the removal of ashes from school buildings.

Louisville, Ky., has ordered six new motor trucks which will replace eight wagons in the collection of the mail.



Firestone

Removable Rim Equipment Enables Tire Change to Be Made Easily and Quickly Without Removing the Wheel

FIRESTONE Quick Removable Rims are built to S. A. E. Standard. Changes to Firestone Tires are easily made and will result in the permanent profit of quick deliveries, low upkeep, protection to trucks and a thoroughly dependable haulage system.

Wherever we have no service stations, the simplicity and easy handling of the Firestone Rim Equipment is invaluable to truck owners. Drivers

themselves can make tire changes easily.

The right tire and rim equipment for every load, road and business need. Prompt, courteous and expert help always on demand—this is Firestone service in all the large cities—everywhere.

Firestone specialists are expert at fitting the equipment to your special need. Let one call and advise with you, or write for catalog.

Firestone Tire and Rubber Co., Akron, Ohio—All Large Cities

"America's Largest Exclusive Tire and Rim Makers"

Pneumatic Tires, Truck Tires, Pleasure Electric
Tires, Carriage Tires, Cycle Tires,
Fire Apparatus Tires, Rims,
Tire Accessories, etc.



When Writing, Please Say—"Saw Your Ad. in the C C J"

Making the Proper Care of Chain Drives Easy for the Driver

By MURRAY FAHNESTOCK



THE flexibility and the rugged strength of the chain have made it the preferred form of final drive for many trucks. While the amount of neglect that a good chain will endure is surprising, there is no doubt that a little care and attention to the chain and its sprockets will pay Ford dividends in increased efficiency and lower costs of operation.

The care of the chain may be divided into two parts; its proper adjustment, to counteract the stretch due to the inevitable wear, and the lubrication, to minimize the wear and save power.

If the chain is too tightly adjusted, there will be undue strain and friction in the shaft bearings and the chain will soon be stretched out of its proper form. The chain should be so adjusted that it will show some slack while running, or so that midway between the sprockets, the chain may be deflected about one or two inches. A chain that has been well cleaned and lubricated will tighten up slightly when first placed in service, as the dust fills up the spaces between the rivets and the rollers, thus shortening the chain. While the amount of space occupied between each link is small, yet this, multiplied by the number of links may amount to an appreciable distance. It is also well to glance at the chains occasionally when traveling over muddy roads, for the chains have a tendency to tighten up when mud gets between the rollers and the rivets.

The tension of the chain should be tested when the truck is loaded and when it is empty, for on some trucks, the deflection of the springs slightly alters the distance between the sprockets. Another point to be observed, when adjusting the radius rods, is to keep the spring shackles as nearly vertical, as possible, when the truck is laden with its normal load. If sufficient freedom is not allowed in these shackles, the action of the springs will be curtailed, and the truck will ride hard, causing excessive wear on both truck and tires. When these shackles slant noticeably backward, links should be removed to shorten the chain and bring the shackles vertical.



PULL
Joining Chains With String
The two rollers are used as pulleys to draw the chain together

The wear of the chain sometimes causes it to stretch unevenly, and for this reason it is well to test the tightness of the chain by driving the truck forward for an entire revolution of the chain, before finally tightening the locknuts on the radius rods.

If the chain becomes too tight at any point, the radius rods must be slightly slackened.

The chains should always be replaced on the sprockets with the removable plates and cotter pins on the outside thus facilitating roadside repairs. After the chains have been removed for cleaning, it is well to replace them on opposite sides of the truck, in order to more nearly equalize the wear.

If the chain is too loose, it is very apt to climb up on the teeth of the sprocket and break. The slapping of a loose chain causes jerks that are harmful to the entire power plant and cause rapid wear of the chain itself. If the threads on which the nuts on the radius rods work are kept lubricated with a mixture of grease and graphite, there will be less temptation to let the chains run as long as possible, before adjusting them. It seldom pays to run a chain until it falls to pieces on the road, for the increased power consumed and the extra wear on the sprockets is seldom justified by the slight additional mileage obtained. A broken roller throws an abnormal strain on the adjacent rollers and is apt to cause further breakage, so it should be replaced as soon as possible.



ORIGINAL CONTOUR
Showing Wear on a Sprocket

If one of the driving chains breaks and no other means of repair is available, it is possible to wrap the broken chain around its driving sprocket and to fasten the chain to the frame in such a manner that the countershaft sprocket cannot rotate. Through the action of the differential gear, this compels the other sprocket to rotate twice as fast, thus doubling the gear ratio and the strain on the other chain. As this method puts a severe strain on the differential gear, the truck should be driven very slowly and carefully, when this expedient is used. Most of the driving should be done on the low or the intermediate gear.

For a light truck, it is sometimes possible to make a temporary link out of a short piece of heavy telegraph wire; or a blacksmith can rig up a temporary link by drilling holes in a pair of small steel plates and connecting them with carriage bolts.

It is sometimes possible to move the rear axle forward by adjusting the radius rods, so that a link or two may be omitted and the trip resumed with the shortened chain. While these temporary repairs will only last a short distance, even with the most careful driving, they sometimes prove a very present help in time of trouble when

the driver has forgotten the half a dozen off-set and connecting links that should invariably be carried on the truck. One large truck user has the extra links fastened in the tool-box with screws, so that they cannot be removed, except by the deliberate intention of the driver.



A Homemade Temporary Link

It is necessary to carry off-set links, because it sometimes happens that the chain cannot be adjusted to the proper length, and the rear axle kept parallel to the front axle, unless off-set links are used. Not more than one off-set link should be used in each chain, because they are weaker and more apt to give trouble than the regular links. If the axles are not kept parallel, the tires will be dragged over the ground, and rapidly worn out. When the steering wheels are turned straight ahead, the distance between the hubcaps on each side should be made equal. It is better to measure the distance between the hubcaps with a tape line or a light stick, in order to be sure of accurate results.

One good method of measuring chain wear is to fasten one end of the chain to the floor, and then to measure the distance through the other end, the chain being pulled and then compressed without buckling. This method measures the sum total of the slack in the individual rivets. It is well to check up all new chains in this manner to make sure that an old chain has not been sent by mistake. The sketch also shows the amount of sideplay that is sometimes found in an old chain, but there will be little sideplay in a new chain.

It frequently happens that the truck driver has to make chain repairs unassisted, and, unless he knows of some convenient means of holding the ends of the chain together, he is apt to find the manipulation of the heavy chain a rather difficult task. Fortunately, there are a number of suitable methods, which may be used according to the exigencies of the particular situation.

One of the easiest of these is to take the lower side of the chain and place it so that it reaches more than halfway around the sprocket. The other end is then drawn over the top of the sprocket. By pressing downward on the chain, it may be forced between the teeth, where it may easily be held until the connecting link is replaced. The replacement of the chain is easier, if the radius rods are loosened, but this involves more work than is necessary and it often happens that wrenches of adequate size for the adjustment of the radius rods are not carried in the tool-box.

WHITE MOTOR TRUCKS Are the Nation's Choice

BOTH IN THE QUANTITY OF TRUCKS SOLD AND IN THE VALUE OF TRUCK SALES, WE ARE THE LARGEST MANUFACTURERS OF COMMERCIAL MOTOR VEHICLES IN AMERICA.

Official Records of the Motor Truck Industry Verify This Statement

This Leadership of the Truck Industry is of the utmost importance, both to the many who already own White Trucks, and to the many others who will eventually purchase White Trucks.

**TO THE OWNERS OF
WHITE TRUCKS**

THIS LEADERSHIP proves the correctness of your judgment in selecting your motor truck equipment.

It shows that you have chosen the same motor truck that the majority of truck users in America have selected.

In practically every case, this selection has been the result of a process of rigid experimentation and elimination, in which White Trucks have proved their superiority over all others.

This preference for White Trucks by the largest users of motor trucks as well as by the majority of motor truck users guarantees that your investment is protected by a successful, well established manufacturer, having a superior organization for rendering permanent and efficient service during the life-time of the trucks.



**TO FUTURE OWNERS OF
WHITE TRUCKS**

THIS LEADERSHIP is conclusive proof that White Trucks must be superior to all others, because White Supremacy is not measured in numbers alone, but in value as well.

With so many makes of motor trucks on the market, all clamoring for recognition, indisputable supremacy can be gained only by superior merit.

Untruthful advertising, bargain prices, exaggerated claims and guarantees that cannot be fulfilled may make the first sale, but only superior merit can create the confidence which brings continuous repeat orders.

The record of continuous repeat orders whereby the foremost firms in America have acquired huge fleets of White Trucks, after experimenting with other makes, is a convincing reason why you should use White Trucks.

WHITE TRUCKS ARE MOST ECONOMICAL TO OWN

That White Trucks are slightly higher in price, makes White leadership in the truck industry even more complete. It is plain evidence that White construction is so superior that the higher first cost of a White Truck is economy in the long run—proof that White Trucks last longer and cost less to operate and maintain, making them the most economical trucks to own.

White Trucks are built in capacities of $\frac{3}{4}$, $1\frac{1}{2}$, 3 and 5 tons

A SUITABLE SIZE FOR EVERY VARIETY OF SERVICE

THE WHITE COMPANY
CLEVELAND

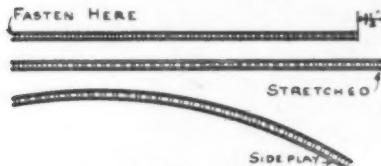
Manufacturers of Gasoline Motor Cars, Motor Trucks and Taxicabs

Another method of drawing the two ends of the chain together, so that the connecting links may be inserted, consists in using the rollers as pulleys. By this block-and-tackle arrangement the power may be greatly multiplied. After the ends of the chain have been brought to the desired position, the end of the cord may be tied to the chain, thus leaving both of the driver's hands free for inserting the connecting link.

The chain tool shown in the sketch is made of two strips of flat steel $\frac{1}{4}$ in. thick, and about $\frac{3}{4}$ in. wide, the size depending on the size of the chain for which it is to be used.

A small bolt or rivet should be used to form the pivot on which the shorter lever turns. After the ends of the levers have been bent to the proper shape, they should be filed to fit the chain links. When the chain has been pulled up tightly by this lever, the lever may be held in position by the driver's knee while he is working at the chain repairs.

If the sprockets are out of alignment, most of the strain will be born by one side of the chain, resulting in rapid wear and liability of breakage. If the sprockets are badly out of line, the chain may jump the sprockets and cause damage by jamming between the sprockets and the frame of the truck.



Tests for Chain Wear

When chain can be stretched one and a half inches or more it should be replaced. Excessive side bend is another indication of wear.

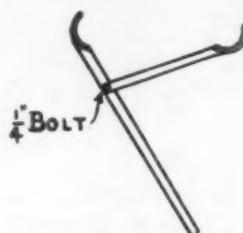
There are two ways in which the sprockets may be out of alignment. The rear axle may not be parallel to the jack shaft, or one sprocket may be further out on its shaft than the other. If the side plates on one side show most of the wear, then it is probable that the axles are not quite parallel to the jack shaft, and the radius rods should be adjusted until the rear axle is parallel to the jack shaft and at right angles to the frame of the truck. By using a straight-edge across the face of the sprockets, or even by sighting along the chain, it is generally possible to determine if the sprockets are in the proper alignment. If one sprocket is farther out on its shaft than the other, then the inside of the side plates on both sides of the chain will be badly worn.

The sprockets should be examined from time to time and the burred edges of the teeth smoothed off with a file.

The sprockets can sometimes be reversed, thus bringing the wear on the other side of the teeth. If the sprockets are badly worn, they should be replaced when a new chain is put on, or the worn sprockets will soon ruin the new chain. A worn sprocket may be detected by comparing it with a new one, or by noting the way in which the teeth fit a new chain. If the teeth of the sprocket are worn until they are under-

cut at the base, on the driving side, as shown by the sketch of the sprocket teeth, they should be replaced, as the projecting corners of the teeth will cause the chain to jerk as it leaves the sprockets and will eventually break the chain.

The small sprocket wears out most quickly and needs to be most frequently replaced. The same amount of chain passes over both sprockets, but as the wear of the front sprocket is confined to a smaller number of teeth, the wear is naturally much



A Handy Chain Tool

greater. It is better to have one or both of the sprockets contain an odd, or better a prime number of teeth, so that the same teeth will not engage the same links of the chain each time. Sprockets having less than ten teeth are hard on chains and consume undue power, because they bend the chain so rapidly and at such an acute angle.

A well lubricated chain saves power, runs more quietly, and not only wears longer but needs less frequent adjustment than a chain that is neglected. A chain should be cleaned before it is lubricated. Those who have ground in valves know that an efficient grinding mixture may be made of grit and oil and this mixture is very destructive to chains. Oil applied to a dirty chain carries the dirt from the outside, where it does little harm, into the bearing surfaces between the rivets and rollers.

Chains can be cleaned by jacking up the rear wheels and using a stiff bristle or a wire brush and a pail of gasoline to remove the dirt. But to thoroughly clean the chains, it is necessary to remove them from the sprockets. After the chains have been removed, they should be cleaned in a pail of gasoline or kerosene. Then the chains should be hung up and allowed to dry. They are then ready to be placed in melted tallow, or else in a mixture of grease and graphite, and allowed to soak for some time, so that the grease may



To Join Chain Press Down at Arrow

penetrate between the rollers. After this, the chain should be hung up and allowed to drain, the surplus grease being wiped off.

A convenient chain cleaner comprises a board pivoted on the wall, and having a porcelain insulator or knob to turn it. A circle of nails forms the sprocket for the chain. The board should be fastened at such a height from the floor that the chain will just dip in a can of gasoline placed on the floor. By turning the board, the chain may be quickly cleaned and greased.

One ingenious truck driver devised a simple but effective aid to chain lubrication. Copper tubing, of the kind used for acetylene lighting, is run from the crank case breather to a point near the jack shaft. From a tee-connection a tube is led to each jack shaft sprocket. These tubes are flattened at the ends so that the oily spray is distributed across the entire width of the chain. Care should be taken that the tubing has no low pockets in which the oil can collect and prevent the proper action of the breather.

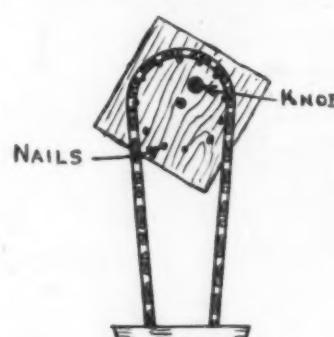
HEAVY HAULING WITH A TRAILER

The problem of handling yellow pine, heavy machinery, structural iron and other loads of great mass and weight, has been solved by the Franklin Garage Company, of Brooklyn, who operate a fleet of seven White heavy service trucks with special patented trailers.

During the first two years of service these trucks were used almost exclusively for hauling heavy lumber for the Yellow Pine Company of New York, and it was found that the use of the special trailer permitted the company to haul lumber in lengths as long as 60 ft. and weighing as high as 12 tons.

The trailer has two wheels which carry a bolster rotating upon a turntable. On the platform of the truck there is mounted a large ball-bearing runway with a number of balls working in grease and kept apart by a spacing device, upon which the forward ends of the lumber rest. This device keeps the load in correct alignment with the truck at all times, and it has been found that a truck and trailer carrying 60-ft. yellow pine will easily turn any corner in the most congested parts of New York City.

The Franklin Garage Company states that the use of their special trailers with White trucks has resulted in reducing the cost of hauling yellow pine lumber from \$2.00 per 1000 ft., board measure, to 85 cents.



A Simple Chain Cleaner



Model "M" 1½ Ton Worm-Drive Chassis



CHAIN-DRIVE MODELS

Model "F" 1 Ton

Timken front axle
Timken rear axle
Timken brakes and radius rods
Timken bearings
Continental motor
Bosch magneto
Covert transmission
Russell jack shaft
Barnes steering gear
Chassis in lead—\$1500

Model "H" 1½ Ton

Timken front axle
Timken rear axle
Timken jack shaft
Timken brakes and radius rods
Timken bearings
Continental motor
Bosch magneto
20" Barnes steering gear, heavy-duty type
Chassis in lead—\$1800

WORM-DRIVE MODELS

Model "L" 1 Ton

Timken David Brown worm-drive front axle
Timken front axle
Timken bearings throughout
Brown-Lipe transmission with Timken bearings
Continental motor
Bosch magneto
20" Barnes steering gear, heavy-duty type
Chassis in lead—\$1750

Model "M" 1½ Ton

Timken David Brown worm-drive rear axle
Timken front axle
Timken bearings throughout
Brown-Lipe transmission with Timken bearings
Continental motor
Bosch magneto
20" Barnes steering gear, heavy-duty type
Chassis in lead—\$2000. 5" rear tires
 $3\frac{1}{2}$ " Dual tires in rear, \$2100

Dealers Wanted!!

The Bowling Green Motor Truck Co.

Write for Catalog

Large honeycomb type radiator with side spring suspension used on all models. All bolts A.L.A.M. thread, cotter-pinned. Castellated nuts.

Bowling Green, Ohio



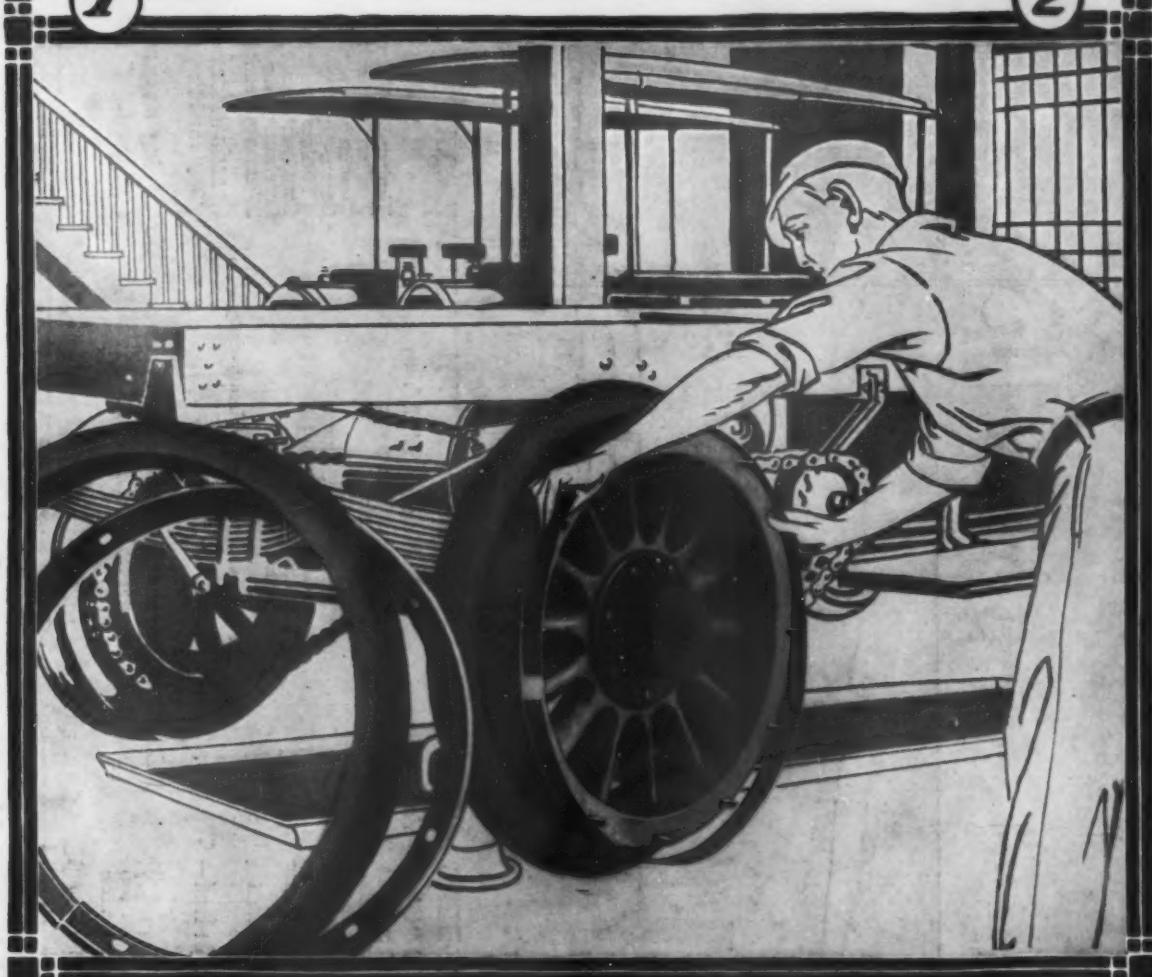
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2

United States Motor Truck Tires Demountable

Motor Trucks equipped with United States Tires
show the maximum saving over horse-drawn trucks.



THE UNITED STATES TIRE COMPANY maintains real service stations in the following cities

Atlanta, Ga., 21 Houston St.	Dallas, Tex., 2109 Commerce St.	Hartford, Conn., Allyn and Hartman Sts.	Milwaukee, Wis., 454 Milwaukee St.
Birmingham, Ala., 423 S. 20th St.	Dayton, O., Second and Jefferson Sts.	Houston, Texas, 706 San Jacinto St.	Minneapolis, Minn., 1522-1524 Hennepin Ave.
Boston, Mass., 560 Commonwealth Ave.	Denver, Colo., 215-217 16th St.	Indianapolis, Ind., 527 North Capitol Ave.	Newark, N. J., 276 Halsey St.
Buffalo, N. Y., 733 Main St.	Des Moines, Iowa, Masonic Temple	Jacksonville, Fla., 804 Main St.	New Haven, Conn., 238 George St.
Butte, Mont., Cor. Park and Idaho Sts.	Detroit, Mich., 243-245 Jefferson Ave.	Kansas City, Mo., 1815 Grand Ave.	New Orleans, La., 609 Baronne St.
Charlotte, N. C., 14 S. Church St.	Fresno, Cal., Masonic Temple Bldg.	Los Angeles, Cal., 923-925 S. Grand Ave.	New York, N. Y., Broadway at 58th St.
Chicago, Ill., 122½ Michigan Ave.	Grand Rapids, Mich., 17 Library St.	Louisville, Ky., 804 S. Third St.	Oklahoma City, Okla., 508 N. Broadway
Cincinnati, Ohio, 303 Lee St.		Syracuse, N. Y., 117 W. Taylor St.	Philadelphia, Pa., 320-331 N. Broad St.
Cleveland, O., 1908 Euclid Ave.		Tacoma, Wash., 1316-18 A St.	Phoenix, Ariz., Cor. N. Central and Fillmore St.
Columbus, O., 55 North Third St.		Toledo, O., 218 North Erie St.	

Pittsburgh, Pa., 5929-31 Beaubien St., E. E.

Portland, Ore., 24-26 Fifth St., North

Providence, R. I., 18 Snow St.

Richmond, Va., 700 W. Broad St.

Rochester, N. Y., 195 East Ave.

Salt Lake City, Utah, 132 East Second St.

San Antonio, Texas, 433 Main Ave.

San Francisco, Cal., 50 Fremont St.

Savannah, Ga., 307 Bull St.

Seattle, Wash., 212-216 Jackson St.

Spokane, Wash., 1011-13 First Ave.

St. Louis, Mo., 3149 Locust St.

Syracuse, N. Y., 117 W. Taylor St.

Tacoma, Wash., 1316-18 A St.

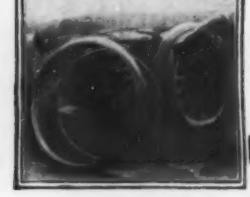
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UNITED STATES TIRE COMPANY
1700 Broadway, New York City



3



4

When Writing, Please Say—"Saw Your Ad. in the C C J"

Philadelphia Electric Company Old Truck User

By JAMES C. GALLAGHER

 **B**ESESIDES being one of the largest users of trucks, the Philadelphia Electric Company is also one of the oldest truck users. It now operates forty-three electrics and forty-six gas cars, ten of these being 1500-lb. cars for long-distance emergency work, and fifteen Fords used by "trouble men." These are fitted with a box at the rear and ladder hooks.

The company's experience with automobiles dates back to 1903, when the first car, a runabout shown in the accompanying illustration, was purchased for the engineering department. In 1904 fourteen Columbia electrics were purchased and also five runabouts for the night patrolmen, whose duty it is to patrol their districts, seeing that all arc lights are kept going. Cars have been added as needed ever since. There are now twenty-one machines for department heads; these being twelve runabouts and nine touring cars. The company also owns thirty-three motorcycles which are used by the light inspectors and trouble men. Although this large number of automobiles and commercial cars is used, a few horses are still employed for dump wagons, hauling coal, for construction gangs, and for operating a few arc lamp trimmers' two-wheeled carts.

Special Trucks

Knowing the value of commercial cars, this company has had built special trucks, necessitated by the unusual character of the work to be performed. Of these, the most striking is a pole truck of six tons capacity, which will easily handle a 90-ft.

pole were it necessary, and is herewith illustrated carrying an 85-ft. pole, the largest used by this company. During the recent National Electric Light Convention at Philadelphia, it was fitted up with side seats, being capable of hauling forty-six persons. This vehicle is practically an elongated electric truck. The rear wheels have independent steer to facilitate handling in congested districts, so arranged that they can be locked when in neutral position. Loading and unloading is accomplished by an electric winch located in the center of the truck. Wheelbase is 20 ft. Weight of truck unloaded is 12,000 lbs; overall length is 31 ft. 6 in.; and the turning radius by using both front and rear steer is 18 ft.



First Car of Philadelphia Electric Company

A runabout purchased in 1903, for the engineering department



Electric Employed by Philadelphia Electric Company

This machine was purchased in 1905 and is still in active service. Note the ladders at the top, for safety reasons explained in the text

Another unique job is shown in the tower wagon with elevating platform, which is used for trimming and inspecting arc lights, displacing a motorcycle, man, horse, wagon and driver and clipping a third off the time required by the old method.



Tower Wagon Used for Arc-Lamp Trimming

It is controlled from either driving seat, so that the driver, after cleaning a lamp, can step to upper seat, drive to next lamp and step back to working platform. In only about four cases is it necessary to raise the platform above the upper seat.

The tower is elevated by a screw which is driven by an electric motor through a friction coupling. The thrust bearing on the screw shaft is at the top of the stationary tower so that the screw is under tension, thus eliminating buckling. The



Heavy Electric Used in Regular Construction Work
It carries supplies for a gang of men. The pikes are carried up high for safety reasons

platform is 14 ft. above ground at low position and 20 ft. at top of travel. The control for this motor is operated from the platform in service or from the ground when necessary, and as the tower approaches its limit of travel either up or down, the current is automatically shut off. In addition, there is a positive stop for the tower at its up or down position to prevent its over running, the friction coupling on the motor preventing the momentum of the armature carrying the tower beyond these limits. The control for operating the vehicle and the brake can be operated from either the lower or upper seat so that the driver, after finishing one lamp, can step from the working platform to the upper seat, drive the car to the next lamp and step back to the platform, resulting in a great saving of time. In about only four cases, is it necessary to raise to the platform above the upper seat.

Accompanying cuts show two hoists built by the company and mounted on the heavier trucks when necessary. One shows the truck erecting a pole, while the other shows the large and heavy base which had to put on a metal pole from the top. The latter can be lowered forward, projecting over the driver's cab, for transportation from job to job. Both are operated by power winches, located behind the driver's seat, which are also used for drawing cable.

In the small electric and gas truck it will be noticed that the ladders are carried near the roof. Safety first! With the ladders carried practically on a level with driver's seat or the floor, men unloading the ladders, sustaining serious injuries. The ladders also often caused damage when the machine was being turned in close quarters. This is prevented by the new location of the ladders. The same is done with the pole-erecting pikes on the larger machines.

The chief handles the automobile drivers through a dispatcher, who comes under the garage foreman, and the horse wagon drivers through the stable foreman. He controls the vehicles while in service, and has nothing to do with their garaging or stabling. All requests for vehicles or hiring for any kind of work must go through his hands. A dispatcher keeps a record of the time the company's vehicles leave and return to the garage, showing the driver's name and his first stop. This is filed in the chief's office.

The vehicles are divided into two classes, "assigned," or those required for continuous service, and "unassigned," or those used in intermittent work. The latter can be secured for service only by filling out an order card, which must be

Care and Control of Vehicles

The company's system of caring for the vehicles is also slightly different from the usual method. To increase the efficiency, all vehicles are under one head, known as the transportation department. The chief, whose office is located at the main garage, is directly under the supervision of the superintendent. He has a representative on duty from 5 A. M. until 11 P. M., who can be reached at any time by telephone.



Derrick Used in Erecting Poles
Operated by the power winch of the truck, it raises the entire pole to position. This derrick is not permanently mounted on the truck, but kept in readiness for mounting on the truck when necessary. This also applies to the other derrick.



Gas Cars Used by Philadelphia Electric Company, for Long-Distance Emergency Work

They are Buicks of fifteen hundred pounds capacity

signed by some one in authority. The passenger vehicles are all assigned, except when used as emergency cars to take the places of ones which are being overhauled. Nearly all the electric trucks are assigned to use by the installation bureau, aerial line, or underground departments, and carry gangs of men, poles and materials to various jobs on the street.

Transportation Department Run as Separate Concern

Each driver is provided with a delivery slip showing the nature of the work to be done, giving necessary directions and stating to what it is to be charged. This latter is an important item, as the transportation department is considered as an outside concern and all records, cost of operation and maintenance, etc., are kept on this basis, a balance being drawn at the end of the year which shows whether there is a gain or loss. The exact cost of each truck is charged against it on special forms for this purpose.

The delivery slips which show the nature of the work and to what it is to be charged are placed in a rack each night under their proper number, and after these have been properly filled out by the driver and turned into the office as "completed," or "not completed," as the case may be, distribution time reports are made out from

them, and copies sent to the superintendent's office, accounting department, and for hired vehicles, to the man who

has charge of these. The system is very complete, and every item of expense is recorded.



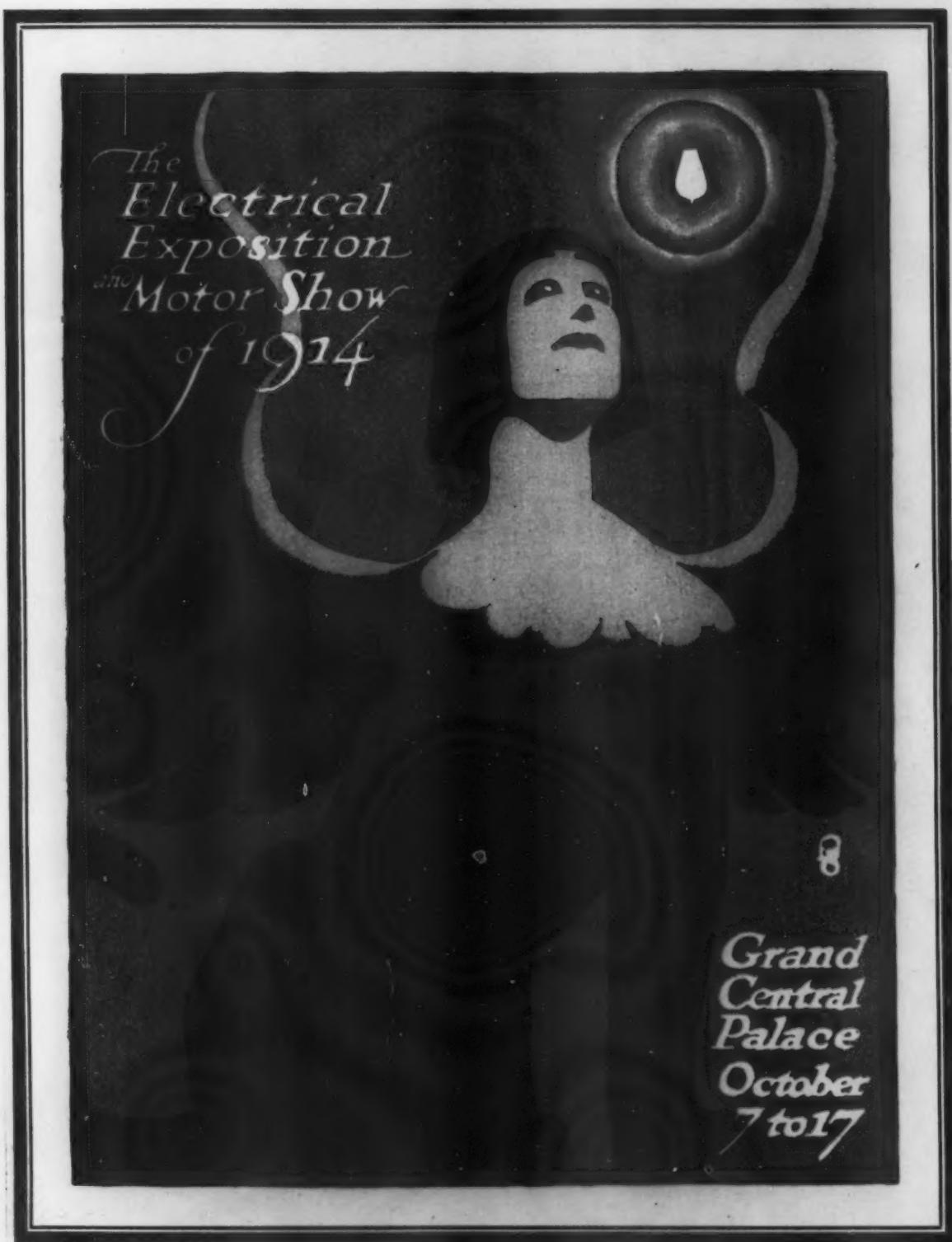
Unusually High Derrick of Philadelphia Electric Company

Operated by the truck's power winch and used to place heavy bases, which had to be dropped over the top of the pole. The derrick can be lowered, being pivoted at the rear of the truck and having its top project over the driver's cab for transportation from job to job.



Special C. T. Electric Pole Truck

Handling an 85 ft. pole with ease. It has four-wheel drive and steer, and turns in a radius of 18 ft. when front and rear steer is used. Wheelbase is 20 ft. Poles are loaded by power winch



Where The Big Men Go

You'll be rubbing shoulders with the most important men in the Electrical, Mechanical, Commercial and Industrial fields. They'll all be at the Electrical Exposition. Automobile Experts—Prominent Engineers—Scientists—Physicians—and a host of others will also attend

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Grand Central Palace
October 7th to 17th

Lexington Ave and 46th St
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White Trucks Which Maintain Public Service Facilities for Some Massachusetts Cities and Towns

New England a Hotbed of Municipal Motorization



CLAIMING a third of the country's wealth in invested capital and value of manufactures, it is not surprising that New England cities should rapidly adopt motor trucks to assist in the construction and maintenance of public service facilities on the big scale necessitated by steady industrial growth. The increased population due to the establishment of new industries and the expansion of old ones, in many municipalities, has been accompanied by the pavement of suburban streets, the extension of water and lighting systems and other public works.

Many of the larger New England cities have had such great success with motor trucks that they are planning to completely motorize certain departments and practically all of the thriving municipalities and townships have made sufficient progress to warrant a greater application of power wagons. While fire and police departments naturally have been foremost in the use of motor trucks, owing to the necessity of greater speed in emergency work, other city departments have shown equal enterprise in adopting power wagons to routine municipal work.

Some idea of the extent to which New England cities are making use of the motor truck is given in the records of the White Company, showing purchases by the cities of Boston, Brockton, Brookline, Framingham, Greenfield, Haverhill, Manchester, Attleboro, Lynn, New Bedford, Danvers, Gloucester, Lawrence, Worcester, New Haven, Somerville, Easthampton, Malden, Southbridge, Fall River, Webster and Woonsocket.

City of Lynn Saves Seventy-three Cents a Ton Hauling Water Mains

A saving of enough money on one job to pay the entire cost of the truck is what the city of Lynn expects from a White truck in the service of the water department, and according to the officials in charge, that expectation will surely be fulfilled. This truck, which is a five-ton, 40-h.p. machine, was purchased for the specific purpose of hauling iron pipe from the wharf to a ditch that will ultimately connect the Lynn water supply ponds with the Ipswich River. The truck was bought only after a careful investigation of the relative cost of horse-drawn and motor-driven trucks.

The department experts now say that when the present job is completed they will have saved enough in hauling expense to pay entirely the original cost of the truck. Moreover, the work will have been done much quicker than if horses had been used.

The mission that the truck is now performing consists of transporting some 7000 tons of iron pipe about 4 1/5 miles. About 6000 tons of the pipe are composed of mains that are 36 in. in diameter, and the rest is 30 in. and less. Obviously the job is one that will take some time, but when it is considered that the truck easily makes six trips a day to two that could be made

with horses, it is apparent how much longer the task would last under the old methods.

According to the officials directly in charge of the work, there is a net saving of approximately \$73 on every ton of pipe hauled by truck over what the cost would be if hauled by horses. With nearly 7000 tons of material to be transported, the economy of using the White truck is readily apparent. When the present job is completed the truck will be turned over to the water department and used for general work.

The street and water departments of the city of Lynn furnish a striking illustration of the way in which certain kinds of heavy hauling can be done quicker and cheaper by motor truck than by horses. The water department transports at one time three big cast-iron mains which, if not impossible for horses to haul, would certainly wear out the heaviest draft horses in short order. In addition, the work of loading the pipes has been simplified to a point where it is almost automatic, reducing the cost of labor and saving a great deal of time that was formerly consumed in yard work.

The yards of the water department are located on the water front, where the pipes arrive by boat and are unloaded by crane. They are arranged in rows and piles, allowing drive space between piles of different sized castings. From the yard they are trucked direct to the construction job. To take on a load the truck is driven alongside a row of pipes and skids are set up so that the lower ends rest on the ground beside the pipe, while the upper ends are supported by the truck platform. A line is passed around the pipe, one end being attached rigidly to a stake-hole, or some other rigid part of the truck, and the other end being wound on the drum of a winch, driven by the motor of the truck. The driver, from the seat, controls the operation of the winch, and as the drum is revolved the pipe is slowly rolled up the set of skids and drawn upon the platform.

Blocks, to prevent the pipe from rolling off the sides of the truck, are placed on both sides of the platform as soon as the pipe is put in its permanent riding position. The entire operation can be performed by two men, one operating the power winch and the other attending to the ropes. In order that the truck may be loaded with two pipes at one time, the truck platform body was built especially wide, and it has a considerable side overhang. When it is necessary to deliver three sections at a time, a two-wheel trailer is employed. But instead of carrying the heavy castings on a bolster, the load is suspended beneath the trailer. For this reason the trailer has wheels of extraordinary diameter, mounted upon a highly arched axle. This design enables the driver to back the trailer directly over a pipe and thus eliminate the work of raising the pipe to the platform. As soon as the trailer wheels have straddled the pipe, a set of chains is passed around it. The ends of the chain are attached to shafts which,

when revolved by a ratchet lever, wind up the chain and thus lift the pipe to the desired point of clearance above the ground.

Water Works Hauling at Seven Cents a Mile

The town of Framingham has saved \$1350 in 18 months by employing a White 1500-lb. truck in the water department. This sum represents the difference between the cost of operating the truck and the cost of teaming during a previous period of 18 months. Water Commissioner Arthur C. Winch said that the truck reduced the time in transportation so that much labor could be put to productive rather than unproductive uses.

The annual report of the superintendent to the Framingham Board of Water Commissioners states that, since the truck was purchased in 1912, there has not been a day when it was not available for use, except while being painted. The report also gives the following figures on the past year's operations:

Miles traveled	7375
Gasoline used, gallons	1145
Cylinder oil used, gallons	10
Cost of shoes, tubes and repairs to same	\$228.92
Cost of repairs	32.03

Although the report does not give the price that was paid for fuel and oil, owing possibly to fluctuations, the highest price, if applied to the town figures, would work out a total of \$500.35, covering all operating expense and repairs; and, since the item of depreciation has been offset by turning unproductive labor into productive labor, the net cost per mile was under \$.07.

New Bedford is one of the cities in which it is planned to oust horses from practically all branches of the street department. Superintendent C. F. Lawton says he expects to see this change made soon. The street department has operated a White five-ton power-dumping truck for one year. In summer it is used to haul crushed stone from the city crusher to road jobs. At other times the department has found a constant use for it. The truck has done the work of three to six double teams and convinced the city officials that it is a money saver.

The city of Gloucester has operated a White 1500-lb. truck in the water department for the past 3 years. The Brockton water department has operated a one and a half ton truck since March, 1913, keeping the machine in continuous service with no repair expense except for tires. The town of Brookline has used a 1500-lb. White in the water department since last July with complete satisfaction.

In Haverhill's water works there is a similar machine which has averaged 1200 miles a month for 10 months, doing practically all of the light and heavy trucking of the department. In February last Superintendent Crowell said that all of the parts of the truck were inspected and found to be in good condition. The machine has proved equal to every emergency, showing efficient service at all times and being particularly economical in upkeep.

AMERICAN AUTOMOBILE MAKERS PLAN FOR INCREASED TRADE

REPORTS from factories throughout the country indicate a return trade in automobiles which like other industries, stopped short with the declarations of war in Europe, but which, according to reports received by the National Automobile Chamber of Commerce, consisting of ninety-two of the leading car makers, should this Fall be fully equal to the same period of last year.

"Freight car movements reported to the Traffic Department of the N. A. C. C. for August," said Alfred Reeves, General Manager of the Chamber, "show there were 5870 carloads of automobiles shipped as against 4469 during the same month last year—a very substantial increase."

"Export orders have fallen flat, as might be expected, yet, it must be remembered that last year they were only .07 per cent. of the total number of cars produced in this country. From July to July we shipped 29,090 cars valued at \$26,574,000 to foreign countries, out of a total product of approximately 435,000 cars. Canada took 4624; 4244 cars went to Australia; and 1985 cars to South America."

"It is the general feeling among the makers that the war should help the automobile trade considerably, especially after the first scare is passed. Even the most conservative builders appreciate that this country has a rare opportunity to secure the trade of the world. It should be noted that during 1913, the automobile exports of foreign countries were as follows: France, \$44,000,000; Germany, \$20,000,000; United Kingdom, \$14,000,000; Italy, \$6,330,000; Belgium, \$6,120,000, according to figures supplied by representatives of the foreign Governments in New York."

"America has been second to France, but now all this trade is open to American makers, besides the trade of Europe itself, after the war has ceased and the up-building begins. Americans who have heretofore spent some \$150,000,000 a year travelling in Europe, are certain to spend a portion of that for motor cars in this country."

"The foreign factories are producing but few cars. Their cars and trucks must suffer in the destructive warfare that is going on, so that before many months our export business should be bigger than ever."

"The American automobile manufacturers are now making plans for aggressive export campaigns, while the American trade during the next 12 months should be the equal, if not greater than last year."

"American makers are conservatively optimistic," concluded Mr. Reeves, "with

complete confidence in the possibilities of increased trade during the next 12 months."



Little Giant Truck En Route Chicago to Boston and Return

On August 22d we had the pleasure of seeing the staunch Little Giant truck which was on its way to Boston from Chicago with capacity load of one ton. George R. Giroux, in charge, was enthusiastic over the performance of the vehicle, which had covered a mileage to that date of 1063½, on 114 gallons of gasoline, and 14½ quarts of oil, at a total cost for fuel and oil of \$13.38. The truck arrived in Philadelphia in good condition. It was on exhibition in Boston, September 8th, before starting on its long return trip. Many demonstrations were made en route.



Rowe Trucks With Regulation Ice-Body

The illustration shows two Rowe trucks in service at Bryn Mawr, Pa., with the Bryn Mawr Ice Company. These trucks are of two tons capacity, chain drive. They have been in constant use for the past three months and have given extraordinary service. The freight truck, as it is called, owing to the business it is compelled to do, namely, supply wagons on the different routes, made a record on Saturday, July 16th, of running 103 miles, hauling 181 cakes, or 25 tons, thereby showing a splendid record. These trucks are built by the Rowe Motor Manufacturing Company, of Downingtown, Pa.



A Few of the Forty-two Whites Owned by Bell Telephone Company



EVERY automobile accessory sold in connection with the J-M emblem not only entitles the user to the benefits of far-reaching and efficient Johns-Manville Service, but is a proven product backed by the Johns-Manville Guarantee. And this guarantee can only be construed to mean one thing, that the purchaser must be satisfied.



Never Off Duty

The clean-cut, powerful note of the Long Horn, that clears the way so effectively through the tightest traffic jam, NEVER FAILS. The

LONG HORN

is ALWAYS RELIABLE. It depends on the hand or elbow for its motive power, and no power is so safe, so sure and so certain. The absence of batteries, wires and bulb means no upkeep cost.

The Long Horn is strongly and simply built from the best materials. Its sturdy construction and powerful note make it the logical horn for commercial vehicles. Its installation marks the end of "horn troubles."

Other Models, \$6 to \$18

Write for booklet

OTHER J-M ACCESSORIES FOR COMMERCIAL CARS: Jones Speedometers, Recorders and Hub Odometer, Carter Carburetor, J-M Dry Batteries, J-M Automobile Tape

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Cincinnati	Indianapolis	Philadelphia	Washington
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Columbus	Los Angeles	Portland, Ore.	Youngstown

THE CANADIAN H. W. JOHNS-MANVILLE CO., Ltd.

Toronto Montreal Winnipeg Vancouver

It Does Pay to Buy Better Plugs

You get hotter sparks, longer service and perfect ignition, when you use the

J-M Soot Proof SPARK PLUG

Soot has no opportunity to collect around the electrode. Double-chamber construction prevents this, and by so doing, removes the commonest cause of short-circuits.

Disassembling is facilitated by the two-unit design. Joints are made absolutely gas-tight, preventing compression leakage. The insulator is made from finely tempered clays which resist extreme variations in temperature. J-M (Meager) Soot-Proof Plugs cost more to build but the greater returns in service and satisfaction fully justify the extra manufacturing cost.

To insure getting the GENUINE—look for the OPEN END.

Price, \$1

Write for booklet



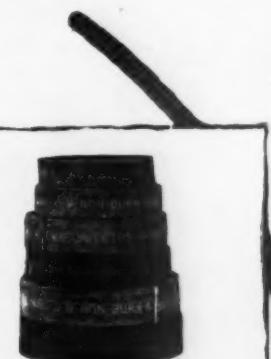
Economy Commands It Safety Demands It

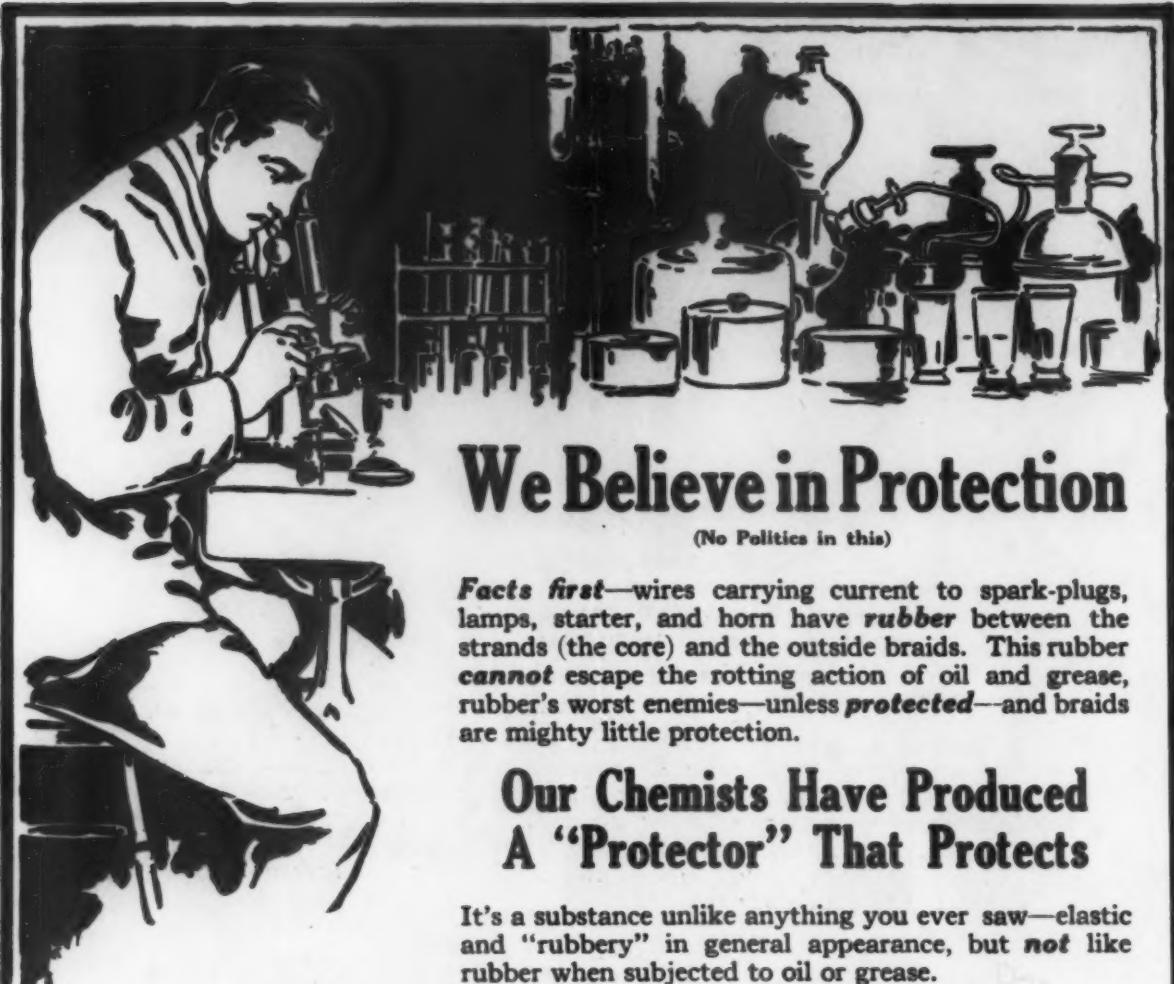
For the greatest wear and for maximum braking power, specify and insist on

J-M Non-Burn Brake Lining

Outlasts ordinary linings because it is better made. The material used is pure, long-fibre Canadian Asbestos, tightly woven and reinforced with strong brass wire; unaffected by the most intense frictional heat. Thorough impregnation renders this material absolutely impervious to water, oil and gasoline. J-M Non-Burn retains its high braking efficiency throughout its life because it wears uniformly, and because at every stage in its wear the braking surface is one hundred percent perfect.

Write for "Practical Pointers on the Care of Automobile Brakes"





We Believe in Protection

(No Politics in this)

Facts first—wires carrying current to spark-plugs, lamps, starter, and horn have **rubber** between the strands (the core) and the outside braids. This rubber **cannot** escape the rotting action of oil and grease, rubber's worst enemies—unless **protected**—and braids are mighty little protection.

Our Chemists Have Produced A "Protector" That Protects

It's a substance unlike anything you ever saw—elastic and "rubbery" in general appearance, but **not** like rubber when subjected to oil or grease.

We Practice What We Preach—When Making

Packard PROTECTED CABLE

This "protector" is applied to each individual conductor and to the completed cable in the form of a very light enamel which fills and closes every pore, successive coats being added until the rubber is **sealed** with an oil-proof covering,—a kind of elastic "skin" which in no way injures the rubber or affects the cable's flexibility.

Protection against oil is thus **built into** the cable—and because oil is ever present on an automobile or motor boat

We Believe in Protection

27 styles, for Ignition, Starting and Lighting, always ready for immediate delivery. All protected.

The Packard Electric Co., Warren, Ohio



Combination High Tension Cable



(100)

T. E. REEDER President

H. L. PULCHER Vice Presy & Genl. Mgr.

FEDERAL MOTOR TRUCK COMPANY

MANUFACTURERS OF
FEDERAL
 MOTOR TRUCKS

CABLE ADDRESS: FEBTRUCK
 WESTERN UNION CODE

REPLY TO ATTENTION OF

DETROIT MICHIGAN USA

MR. Pulcher

TO USERS OF MOTOR TRUCKS:

Progress, competition, traffic regulation and the increased speed of the business world all have made the motor truck a necessity. It is as important to modern business as the railroad, the steamship, the telegraph and the telephone.

Men who have made the study of transportation a life work were quick to appreciate the fact that motor trucks were efficient and would show dividends. Transportation experts of large corporations know motor trucks from radiator to tail lamp and the fact that these men are placing repeat orders for FEDERAL TRUCKS is evidence that they have made good in the service of the most critical users.

The Federal Motor Truck Company are firm believers in the production of one model only. Their entire organization is putting all its energies into one model, which means larger purchases, greater production, lower production cost and consequently lower selling price to the consumer.

The purchaser should look carefully into the financial responsibility of the manufacturer, so that he may be positive that the manufacturer will be able to give him proper service during the life of the vehicle.

Many truck manufacturers are copying FEDERAL design and pointing to their truck as being as good as the FEDERAL; but when you compare specifications (which really is the answer, the name plate meaning nothing) we defy any manufacturer to prove that they are giving the same specification as you find in the FEDERAL MOTOR TRUCK for \$1800.00

Yours very truly,

FEDERAL MOTOR TRUCK CO.,

M. L. Pulcher
 Vice Pres. & Gen'l Mgr.

MLP/R



PRACTICAL PROTECTION



SHELDON

WORM GEAR AXLES

"The buyer agrees to use the material called for in this order on trucks with a carrying capacity as given herein. Any departure from this agreement relieves the seller of all responsibility for breakage, and the seller may at his option discontinue furnishing additional equipments for such trucks."

THIS IS THE CLAUSE IN OUR CONTRACT WITH TRUCK MANUFACTURERS WHICH SHOWS OUR HONESTY OF PURPOSE AND WHICH IS YOUR INSURANCE OF SATISFACTION WITH THE PERFORMANCE OF SHELDON TRUCK PARTS.

PRACTICE

Nine-tenths of the grief which arises in the use of motor trucks is caused by overrating the working ability of trucks. Misrepresentation is hardly ever the intention, but truck manufacturers, spurred on by the exigencies of competition, sometimes lose their sense of perspective.

All throughout the design and construction of a truck a generous factor of safety is provided to take care of overloads, which are bound to occur.

Truck manufacturers know that the axle maker provides a factor of safety, they also know that the motor manufacturer, the frame manufacturer, the spring manufacturer and every other manufacturer who furnishes parts, provides a factor of safety to take care of overloads. And in their anxiety to meet competition they feel safe in borrowing generously from these factors of safety and applying what they have borrowed to make the normal capacity rating of their trucks as great as possible.

When a truck manufacturer rates a truck at three tons carrying capacity to his dealers, the dealers in turn feel justified in so rating that truck to the user. So far so good, but there is always a day of reckoning.

Constant overloading the legitimate carrying capacity of a truck means disaster sooner or later, and the truck's failure to live up to what it is represented as capable of doing, kicks back at you first, then the manufacturer, then the parts maker.

WHO IS TO BLAME?

There has been every chance in the world for conservatism. The axle maker can give no more than his axle will live up to, the truck maker can give no more than he gets from the parts maker, and the dealer can sell no more than the parts maker gave the manufacturer whose trucks he handles.

At the hand of the user, however, the truck often is made to carry as much as can be loaded upon it, for a great many business men believe in driving machinery to the limit, making it earn its cost as quickly as possible instead of stretching its earning power over a longer period of time.

This is what the parts maker knows to be a fact, and this is what he guards against if he is as conscientious as the clause in our contract shows us to be. The whole thing is up to the truck manufacturer, especially in so far as you are concerned, and we believe you will find it greatly to your advantage to insist upon Sheldon Axle equipment or at least upon the practical conservatism this clause in our contract insures.

SHELDON POLICY

Sheldon truck parts are designed to give long life and maximum efficiency under certain conditions.

Those conditions are plainly specified in our contract with truck manufacturers. We never let our anxiety for business distort what we know to be facts.

A two-ton axle is no more capable of performing the work of a three-ton axle than a child is of doing the work of a full-grown man. We always rate the axle made by us at a capacity we know to be safe, and at that capacity that Sheldon Axles will give satisfactory service for a long period of time. It is for this reason that we require our manufacturers to agree with us—"To use the materials called for in his order on trucks with a carrying capacity as given therein."

This we believe to be the most business-like clause that ever has been written into any manufacturer's contract, and it should establish a confidence on the part of everybody concerned in Sheldon Axles.

SHELDON AXLE COMPANY

WILKES-BARRE

Makers of Springs and Axles for Heavy
Duty Service for More Than 50 Years

PENNSYLVANIA

Chicago. Peoples Gas Bldg., 122 S. Michigan Blvd.
San Francisco, 444 Market St.

Detroit, 1215 Woodward Ave.

"If They'd Only Keep The 'Gas' in a Bowser Outfit"

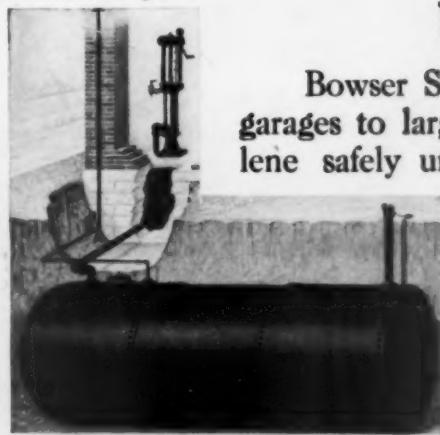


paired delivery service. Store the gasoline in a

BOWSER
ESTABLISHED 1885

**Underground Gasoline
Storage System**

Then—no more lost power, no lost motion—just efficiency, economy and safety.



Used Everywhere

Bowser Systems are used everywhere from small private garages to large commercial stations. They store the gasoline safely underground, pipe and pump it any distance to garage right into the car. Gasoline can't evaporate, can't be unduly agitated, can't leak, can't be lost in any way—is automatically measured and checked as pumped. The saving will often pay for the system in a few months.

Other Bowser Equipment

This includes Bowser cabinets for storing lubricating oil; self-measuring pumps; portable tanks and De Luxe oil storage equipment. All sizes; all capacities. Easily and economically installed. For particulars of your system, write Bowser. It costs nothing to ask questions and to learn how you can save money and increase the efficiency of your garage.



Write today.

Engineers, Manufact-
urers and Original
Patentees of
Oil Handling Devices

S. F. Bowser & Co., Inc.

2898 Thomas Street, FORT WAYNE, INDIANA, U.S.A.

Sales Offices in All
Centers and
Representatives
Everywhere

GIBNEY WIRELESS TIRES

**3
YEARS
AHEAD**

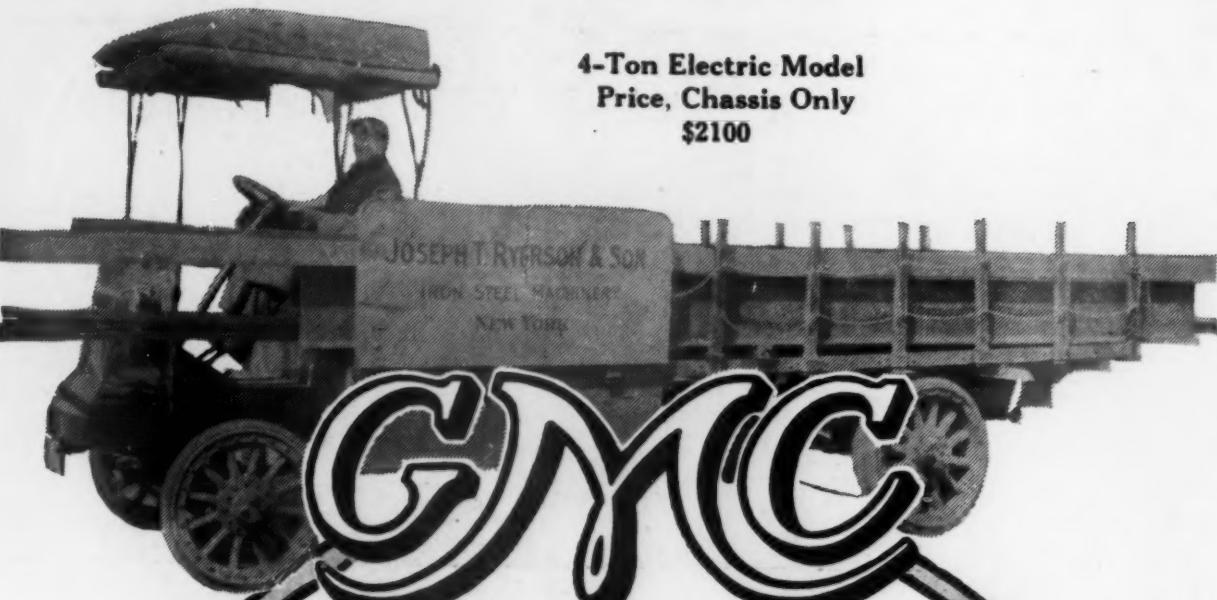
GIBNEY
Tire & Rubber Co.
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When Writing, Please Say—"Saw Your Ad. in the C C J"

**4-Ton Electric Model
Price, Chassis Only
\$2100**

JOSEPH T. RYERSON & SON
IRON STEEL MACHINERY
New York



GMC
GENERAL MOTORS COMPANY
TRUCKS

Built to Meet Known Haulage Conditions

Some businesses cannot use trucks to advantage. The hauls may be too short or the stops at shipping platforms ruinously long.

The vast majority of work, however, can be done better and cheaper with trucks than with horse flesh.

The point is, every business house ought to get the facts as they individually apply.

One of the main activities of our business is to help executives who are willing to place their time against ours, **actually find out** whether motor haulage would prove profitable in their service. We co-operate and work with you.

And if, in the end, we decide that motor trucks would not serve you with profit, we frankly tell you so.

We are building for the future on a rock foundation of good will—yours and that of GMC truck owners. We could not afford to advise you wrongly.

The business house that can use trucks to advantage is able to select from the comprehensive GMC line of gasoline and electric trucks the right machine for its service. Our endeavor is never to sell one type or size of machine. It is rather to help select the equipment that represents the utmost in efficiency and economy for **you**.

A request for details or an appointment to discuss our method and **your** situation will place you under no obligation whatever.

We invite also correspondence with dealers who would like to hear about our plan of selling trucks that stay sold.

GENERAL MOTORS TRUCK COMPANY

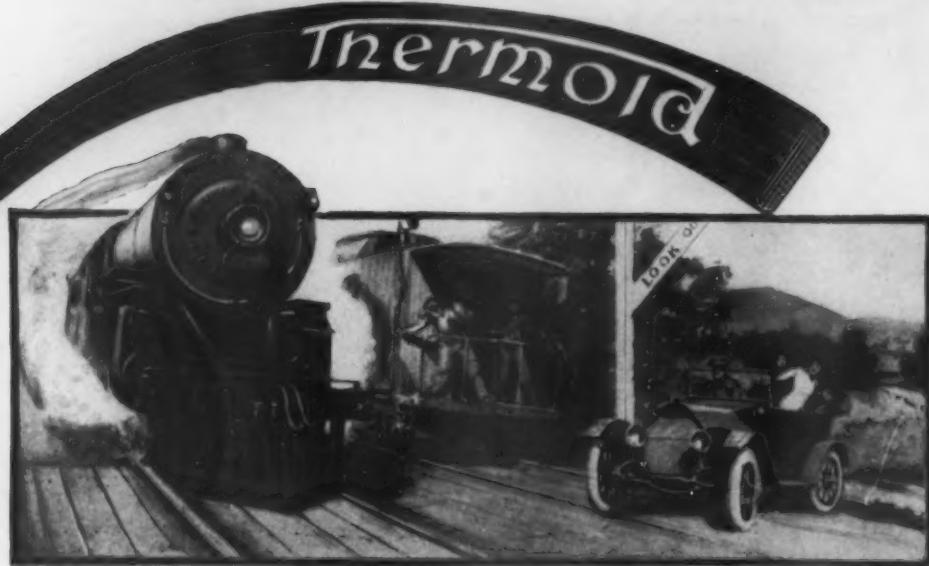
One of the Units of the General Motors Company

Pontiac

Michigan

New York	Boston	Chicago	Philadelphia
Detroit	Kansas City	St. Louis	

When Writing, Please Say—"Saw Your Ad. in the C C J"



When Disaster is Near—Thermoid Holds!

You can trust Thermoid Brake Lining.

Suit yourself on make of car. You are pretty sure to get good value. But be firm on the matter of brake lining. Brake lining is a small thing—until Death dances in the right of way. Most good cars are equipped at the factories with Thermoid. That's because automobile builders and engineers know that Thermoid is absolutely reliable. If these makers don't dare to experiment with other brake linings, is it wise for you to be indifferent when your brakes are relined?

Insist at the garage that Thermoid be used. Examine it yourself and see that the trade-mark is stamped on the goods. Don't drive your car another day until you know that Thermoid lines the brakes.

And when you buy a new car be assured that Thermoid is in the brakes. Take that precaution for the sake of those who are to ride in the car.

The base of Thermoid is pure Canadian asbestos, interwoven and reinforced with solid brass wire. While in a comparatively loose state, this base has rolled into it, by giant

rolls, a wonderful friction compound which impregnates and coats every asbestos fibre. Then the whole mass is hydraulically compressed—a compression of 2000 pounds—which reduces it to a solid, hard, practically indestructible substance—Thermoid.

Thermoid HYDRAULIC COMPRESSED Brake Lining—100%

It is a brake lining all through—efficient until worn as thin as paper. Thermoid cannot be burned out. It cannot dry up and crumble. It cannot crack. And it wears indefinitely—so long that it is an economical brake lining, although surely no one will think of the cost of brake lining.

Every garage in the country has Thermoid—or can get it.

Our guarantee—Thermoid will make good—or we will.

THERMOID RUBBER COMPANY
Trenton, New Jersey

Thermoid is the Best Advertised Brake Lining

Hence it's the best known. And there'll be no let-up to Thermoid publicity. This means increased demand—increased sales to those who are interested in "Safety First."

Thermoid has stood every test that automobile engineers and other engineering experts could devise. It acknowledges no rival.

Most wise dealers now sell Thermoid. In case YOU have not stocked it, any of the jobbers listed here can supply you.

Thermoid HYDRAULIC COMPRESSED Brake Lining - 100%

THESE JOBBERS CARRY A COMPLETE STOCK:

ALABAMA

Birmingham—Drennan Motor Car Co.
Montgomery—The Johnson Tire Co.

CALIFORNIA

American Ever Ready Works of National Carbon Co., San Francisco, Los Angeles—Pacific Coast Distributors
Fresno—Chandler & Lyon Co.
Los Angeles—Chandler & Lyon Co.
E. A. Featherstone
Weinstock-Nichols Co.
Oakland—Chandler & Lyon Co.
Weinstock-Nichols Co.
Sacramento—Kimball-Upon Co.
San Diego—Auto Tire Co.
San Francisco—Chandler & Lyon Co.
Electric Appliance Co.
Mohrig Brothers
Spotless Hefner Co.
Weinstock-Nichols Co.

COLORADO

Denver—Auto Equipment Co.
Denver Auto Goods Co.
M. L. Foss
The Fry & McGill Motor Supply Co.
The George Hamburger Tool & Supply Co.
Shaffer Auto Supply Co.
Pueblo—Auto Equipment Co.

CONNECTICUT

Greenwich—Owners Tire & Supply Shop
Hartford—Charles E. Miller
Post & Lester Co.
Meriden—Griswold, Richmond & Glock Co.
New Haven—The A. E. Alling Rubber Co.
Henry Horton
The New Haven Rubber Store
New London—Alling Rubber Co.
Norwich—Alling Rubber Co.
Stamford—The Stamford Rubber Co.
Torrington—E. A. Perkins Electric Co.

DISTRICT OF COLUMBIA

Washington—Rudolph & West Co.
Washington Motor Car Equipment Co.

FLORIDA

Jacksonville—McGraw Auto Supply Co.
Tampa—American Supply Co.

GEORGIA

Atlanta—Elyea-Austell Co.
Chas. E. Miller
Savannah—Poyd Tire Co.

ILLINOIS

Bloomington—Bloomington Auto Supply Co.
Cairo—Cairo Motor Co.
Chicago—W. D. Allen Mfg. Co.
The Automobile Supply Co.
Chicago Rubber Co.
Clader & Serson
Electric Appliance Co.
Hine-Watt Mfg. Co.
Motor Car Supply Co.
Motor Supplies Co.
The Whitaker Mfg. Co.
Danville—E. B. Collins Motor Co.
Quincy—Quincy Garage
Rock Island—Tri City Auto Supply Co.
Springfield—Bittel-Leftrich Tire Service Co.
Springfield Auto Sales Co.
Streator—Williams Hardware Co.

INDIANA

Ft. Wayne—Auto Supply Co.
Indianapolis—Gibson Automobile Co.
The I. J. Cooper Rubber Co.

IOWA

Clinton—Model Auto Co.
Davenport—Mason Carriage Works
Des Moines—Des Moines Auto Supply Co.
Dubuque—Dubuque Rubber & Belting Co.
Oskaloosa—The Schie Co.
Sioux City—Dymond-Simmons Hardware Co.
Schultz—Auto Supply Co.
Waterloo—Repas Automobile Co.

KANSAS

Wichita—C. A. Hagberg Rubber Co.
The Morton-Simmons Hardware Co.

KENTUCKY

Louisville—Andrew Cowan & Co.

LOUISIANA

New Orleans—Electric Appliance Co.
Interstate Electric Co.
Chas. E. Miller

MARYLAND

Baltimore—Coggins & Owens
Frank Bros.
R. M. Stein Co.

MASSACHUSETTS

Boston—Boston Tire & Rubber Co.
Green & Sweet
Chas. E. Miller
Motor Accessories Co.
Post & Lester Co.

New Bedford—Auto Selling & Supply Co.
Springfield—Chas. E. Miller

Worcester—Alling Rubber Co.

Post & Lester Co.

MICHIGAN

Coldwater—Coldwater Garage
Detroit—Automobile Equipment Co.
Automobile Supply Co.
Chas. E. Miller

Fiat—Cumings Bros.
Grand Rapids—Michigan Tire Co.

MINNESOTA

Duluth—Kelley-Haw-Thomson Co.
Kelley Hardware Co.
Minneapolis—Janney, Semple, Hill & Co.

Pence Auto Co.
Simmons Hardware Co.

St. Paul—Nicol's, Dean & Gregg
Reed Motor Supply Co.

MISSISSIPPI

Vicksburg—Lee Richardson & Co.

MISSOURI

Cape Girardeau—Cotter Auto Supply Co.
Kansas City—Foster Iron Co.

Motor & Machinists Supply Co.

St. Joseph—Wyeth Hardware & Mfg. Co.

St. Louis—Fred Campbell
Koochuk Rubber Co.

Neusselt Automobile & Supply Co.

Phoenix Auto Supply Co.

Shepleigh Hardware Co.

Simmons Hardware Co.

United Electric and Supply Co.

NEBRASKA

Omaha—The Omaha Auto Supply Co.

Omaha Rubber Co.

Stora Auto Supply Co.

Western Auto Supply Co.

NEW JERSEY

Atlantic City—Cuskaden Auto Supply Co.
State Garage
Newark—Chas. E. Ball, Inc.
Chas. E. Miller
Newton-Humphreys Co.
W. E. Shepard
Paterson—Alling Rubber Co.
H. Lund Smith
West Hoboken—C. A. Fischer Co.

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Crane & Stenckle, 1912 Broadway
DeVore & Strang, 54-56 Chambers St.
Lowe Motor Supply Co., 1727 Broad-

WAY

Chas. E. Miller, 924 8th Ave.
Mutual Auto Accessories Co., 58-60 W.
5th St.

New York & Brooklyn Auto Supply
Co., 1717 Broadway
New York Sporting Goods Co., 17
Warren St.

New York Steam Auto Tire Works,
312 W. 52d St.

W. E. Pruden Hardware Co., 53d St.
& 8th Ave.
Rubber Specialty Co., 366 Broadway
W. A. Shanahan Co., 138 W. 86th St.
Samuel Halpern Co., 1761 Broadway

Weaver—Eldred Automobile Co.,
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Westchester Accessories Co., 1777

Broadway
Whittemore-Slim Co., Inc., 1726 Broad-

way
Yorkville Auto Supply Co., 1235 Lexington Ave.

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Chas. H. Turner Co.

Binghamton—Alling-Lockwood Co., Inc.

Brooklyn—Henry Acker
Bedford Auto Supply

Chas. E. Miller
Chas. H. Mussey

W. A. Shanahan-Thompson Corpora-

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Buffalo—Cycle & Auto Supply Co.

Iroquois Rubber Co.

Chas. E. Miller

Huntington—Sammie & Downer

Jamestown—James & Hawkins

Rochester—Rochester Rubber Co.

Schenectady—Jay A. Richard Co.
White & Stevens

Syracuse—The Olmsted Co., Inc., Syracuse

Branch
United States Rubber Co., Syracuse

Utica—Utica Cycle Company

Yonkers—R. B. Hibbard, Inc.

NORTH CAROLINA

Asheville—Dixie Motor Co.

NORTH DAKOTA

Fargo—J. D. Grant

OHIO

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Coughlin & Davis

Cleveland—The Collister & Sayle Co.

Chas. E. Miller

The M. & M. Company

Columbus—The I. J. Cooper Rubber Co.

Dayton—The I. J. Cooper Rubber Co.

G. W. Shroyer & Co.

Newark—Ball-Fintz Co.

Steubenville—Ohio Valley Rubber Co.

Toledo—Standard Simmons Hardware Co.

Warren—Warren Hardware Co.

OREGON

American Ever Ready Works of National Carbon Co., Portland—Pacific Coast Distributors

Portland—Archer & Wiggins Co.

Ballou & Wright Co.

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PENNSYLVANIA

Erie—Jacob Roth

Johnstown—The Johnstown Automobile Co.

Meadville—Harley D. Carpenter & Co.

Oil City—Rieseman Supply Co.

Philadelphia—Paul, Deen & Shearer Co.

Grimes Auto Supply Stores

Chas. E. Miller

Geo. W. Neck Co.

Simmons Hardware Co.

Supplee-Biddle Hardware Co.

Pittsburgh—Auto Accessories Co.

Dyke Motor Supply Co.

Jackson Motor Supply Co.

J. & M. Auto Supply Co.

Pittsburgh Rubber Co.

Joseph Woodwell Co.

Reading—Keyes Fry

M. M. Sales Co.

Warren—Pickett Hardware Co.

Wilkes-Barre—Alling Rubber Co.

RHODE ISLAND

Pawtucket—W. K. Tools Hardware Co.

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J. C. Brown Co.

Goodly-Bankin Co.

Post & Lester Co.

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Sioux Falls—H. F. Brownell Co.

Dakota Iron Store

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Chattanooga—Wallace Buggy Co.

Memphis—Person-Burd & Co.

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Dallas—Electric Appliance Co.

The Fisk Company of Texas

Fort Worth—Panther Auto Supply Co.

Houston—The Fisk Company of Texas

San Antonio—The Fisk Company of Texas

VERMONT

White River Junction—Miller Auto Co.

VIRGINIA

Norfolk—J. M. Hubbard & Co., Inc.

Richmond—Standard Auto Equipment Co.

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Seattle—Ballou & Wright

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Spokane—Child, Day & Churchill

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Green Bay—Morley-Murphy Hardware Co.

Madison—L. F. Schoelkopf

Milwaukee—Julius Andras Sons Co.

Philip Gross Hardware Co.

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Motor Car Supply Co., Ltd.

Edmonton—Motor Car Supply Co., Ltd.

BRITISH COLUMBIA

Vancouver—The Canadian Fairbanks Morse Co., Ltd.

MANITOBA

Winnipeg—The Canadian Fairbanks Morse Co., Ltd.

J. H. M. Kennedy & Co.

NEW BRUNSWICK

St. John—The Canadian Fairbanks Morse Co., Ltd.

ONTARIO

Fort William—The Canadian Fairbanks Morse Co., Ltd.

Ottawa—The Canadian Fairbanks Morse Co., Ltd.

Toronto—The Canadian Fairbanks Morse Co., Ltd.

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Montreal—The Canadian Fairbanks Morse Co., Ltd.

Quebec—The Canadian Fairbanks Morse Co., Ltd.

SASKATCHEWAN

Saskatoon—The Canadian Fairbanks Morse Co., Ltd.

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SOLE SELLING AGENTS

Great Britain—Ed. J. Hardy & Co., Ltd.

Coventry, England

France—Mestre & Blatge, Paris

Germany—Rudge Rad. G. m. b. H., Berlin

Belgium—Mestre & Blatge, Brussels

Our Guarantee: Thermoid

will make good—or

WE will.

Not affected by heat, oil, water, gasoline or dirt

THERMOID RUBBER COMPANY, Trenton, New Jersey

BRANCHES:

Bulletin Bldg., Philadelphia, Pa.
1120 Pine St., St. Louis, Mo.
207 Wood St., Pittsburgh, Pa.

Majestic Bldg., Detroit, Mich.
323 N. Penna. St., Indianapolis, Ind.

When Writing, Please Say—"Saw Your Ad. in the C C J."

Russel Jack Shafts



Now used for a majority of the 1 and 1½ ton trucks made in America.



Manufactured by

Russel Motor Axle Company

North Detroit Michigan

ATTENTION!

FORD, OVERLAND, STUDEBAKER, MAXWELL, BUICK, AND OWNERS OF ALL POPULAR CARS

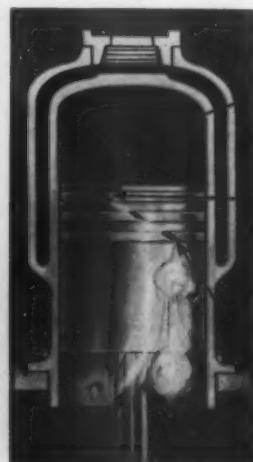
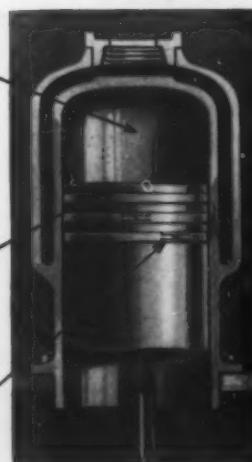
Burd High-Compression Rings

LATEST AND BEST

FULL CHARGE OF LEAN GAS DRAWN FROM THE CARBURETOR, A FULL CHARGE IS COMPRESSED AND A FULL CHARGE IS EXPLODED. NO WASTE—NO LEAKING

NO CARBONIZATION, SOOTY SPARK PLUGS, SCOREING OR WASTED LUBRICATING OIL. A CLEAR, HIGHLY EFFICIENT ECONOMICAL ENGINE.

NO GAS ESCAPING GIVES HIGH COMPRESSION AND NO WASTE OF POWER. 100% EFFICIENCY.



A FULL CHARGE OF GAS CAN NOT BE DRAWN FROM THE CARBURETOR WITH LEAKY RINGS WITHOUT A WASTEFUL USE OF GASOLINE.

OIL SHOOTS UP THROUGH RING OPENINGS CAUSING EXCESS CARBON IN CYLINDER, POSSIBLE SCOREING SOOTY SPARK PLUGS, SMOKE AND WASTED LUBRICATING OIL.

GAS ESCAPING, THUS WASTING POWER. BAD COMPRESSION.

High compression and efficiency. The bronze coupler completely seals the ring openings, making a one-piece complete circle. Write for samples and prices.

BURD HIGH-COMPRESSION RING COMPANY, ROCKFORD, ILL.



**IF
Your Motor Truck
Is Equipped With a**

Pyrene
FIRE EXTINGUISHER

**You Can Secure
15% Reduction**

In Your Fire Insurance Premiums

Should the premium amount to \$50, this saving will pay for Pyrene the first year. Of course, the reduced rate applies each year while the original Pyrene is good until used. It makes no difference whether your trucks are gasoline or electric, if they but carry Pyrene. Pyrene protects the load as well as the truck. Ask your supply dealer, or write our nearest branch. And when adding to your present fleet, be sure to specify Pyrene.

The Aetna Accident and Liability Co. and the Automobile Insurance Co. of Hartford, Conn., allow this reduction. See their agents or consult your own broker.

At all first-class auto supply dealers. Send postal to nearest branch for booklet—proving the service and true economy this scientific fire fighter brings to you.

Bronze and Nickel-Plated Pyrene Fire Extinguishers are included in the lists of Approved Fire Appliances issued by the National Board of Fire Underwriters, examined and labeled under the direction of the Underwriters Laboratories.

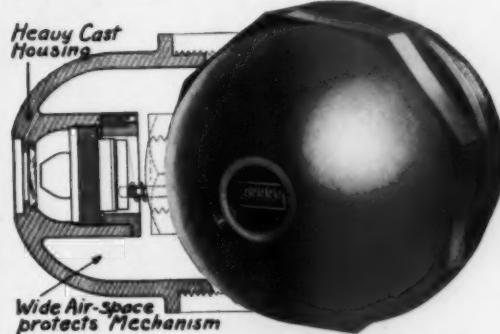
Pyrene Manufacturing Co., 1358 Broadway, New York

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Alton Buffalo Dayton Memphis Richmond
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(1) Time truck is moving	(3) Distance truck covers
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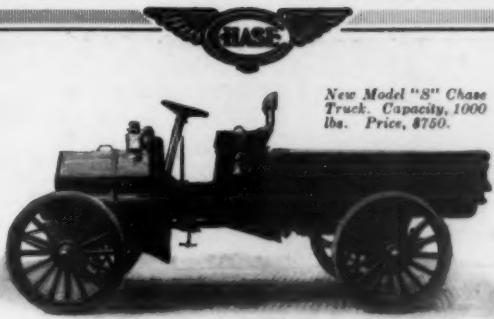
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Truck. Capacity, 1000
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The drive that makes a truck really efficient and profitable

The embodiment of this drive in a truck assures longer service, greater efficiency, less expense, lower operating cost.

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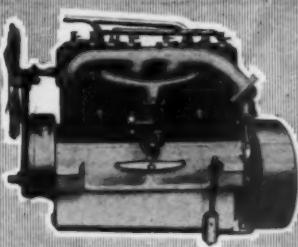
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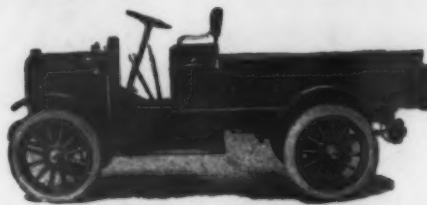
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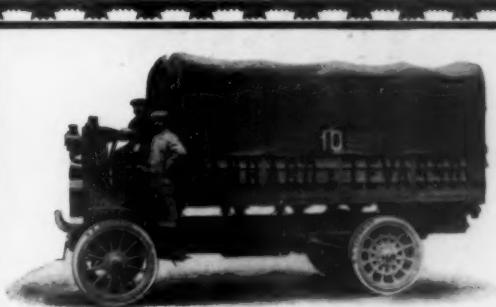
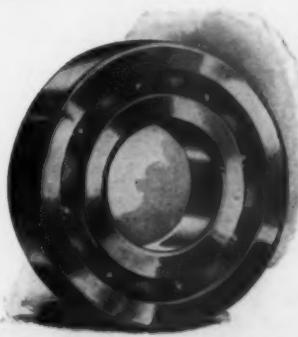
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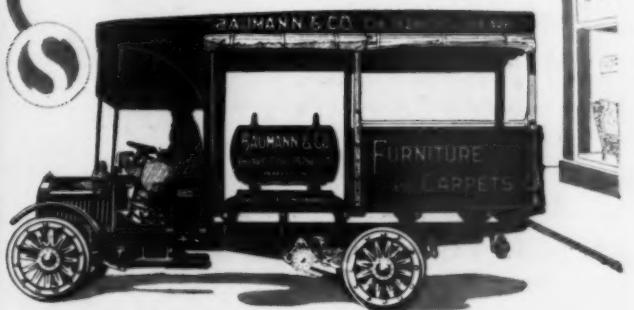
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110 BODY TYPES

KOehler **750**

ONE TON TRUCK

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Especially noticeable in the DeKalb Truck is the low center of gravity—an important item for the user to consider. Then there is the pressed steel frame—unbreakable—much stronger and lighter than the channel iron frame. The motor and driving mechanism are on three-point suspension. The brakes

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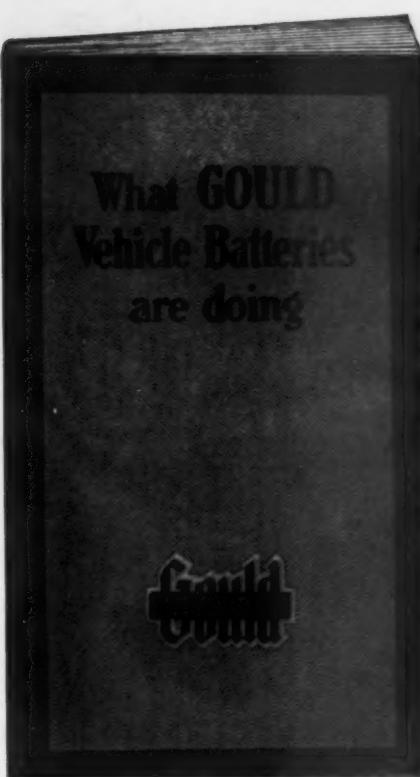
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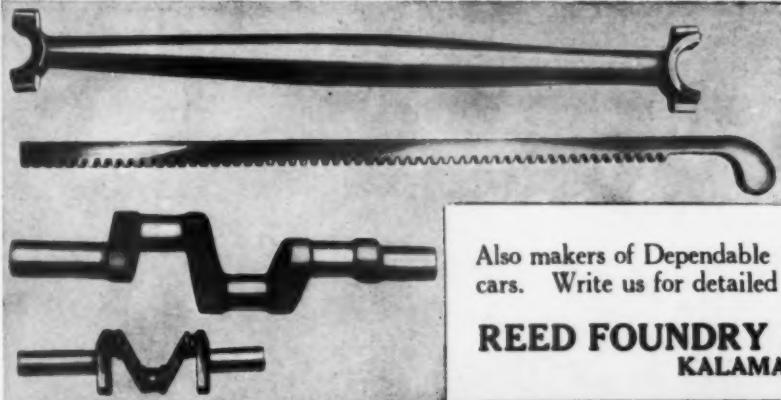


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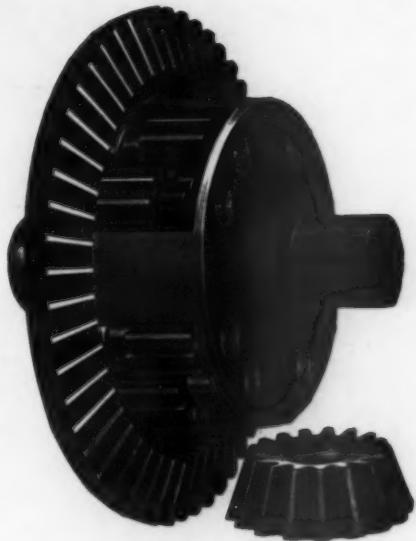
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Consider these points for a moment:

QUALITY—that is proved by the parts used, such as Timken Axles, Wisconsin Motors, Spicer Universal Joints, Schwarz Wheels, Kells Radiator, Bosch Magneto, Brown-Lipe Transmission, Schebler Carburetor, and other equally high-class parts.

ECONOMY—The CROCE distinctive design causes the weight to be one-fourth less than other trucks of similar capacity. This saves enormously on tires and gasoline and makes operation very economical.

EFFICIENCY—In every line of business in which it has been used it has made good. The best proof of this is the fact that we get repeat orders from nearly every customer.

DURABILITY—The CROCE is built so well that it gives long-continued and satisfactory service. The first CROCE built is still in active service after years of usage. The construction is such that every buyer has the right to expect a similar record.

VALUE—There is full value for every dollar in CROCE trucks, and in the long run they are much cheaper than those whose first cost is less.

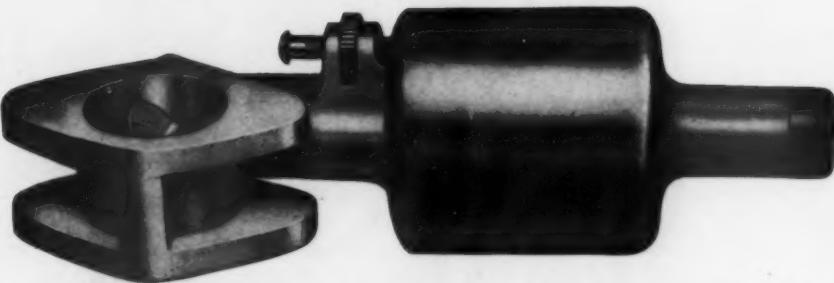
If these qualities appeal to you as being what you and your trade want, write us for complete descriptions, territory, terms, etc.

CROCE AUTOMOBILE CO.
ASBURY PARK, N. J.

These Are the Two Best Speed-Controlling Devices on the Market—One of Them Should Be on Each of Your Trucks

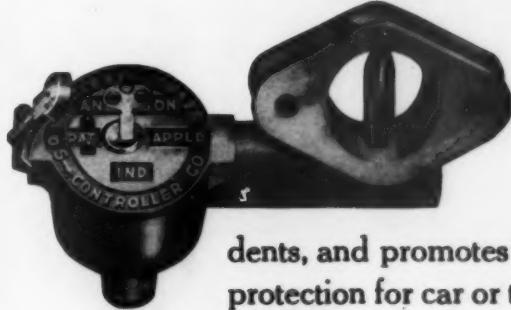
Pierce Motor Governor

This is operated direct from the engine, being attached to any exposed rotating part of the motor.



It is adjustable to any desired number of revolutions per minute. Used by Continental, Velie, Davis, Indiana, Lambert, Wisconsin, Rutenber, etc.

Pierce Speed Controller



This is operated from the front wheel and leaves the motor free under any and all conditions. Increases efficiency and durability; eliminates abuse, overspeeding, and much of the liability of accidents, and promotes economy of operation. Affords absolute protection for car or truck and is used by many leading makers of both.

Your truck needs one of these devices—which one is a matter of individual preference. Send for booklet, prices and blue prints.

The Pierce Speed Controller Company

Anderson, Indiana, U. S. A.

Originators of Speed-Controlling Devices for Gasoline-Driven Cars

EISEMANN

Just as additional evidence of the continued supremacy of Eisemann Ignition, especially in the motor truck field, we cite the fact here-with that at the last count of the 83 concerns with whom we have contracts for standard equipment, 50 of them were contracts with motor truck manufacturers.

As we have often repeated, this simply bears out our contention, that where efficiency, dependability and durability count most, there you will find Eisemann most firmly entrenched.

In other words, Eisemann Magneto are not only a sales asset, but to the manufacturer of motor trucks who must sell on a cost-of-service basis, Eisemann Magneto are the biggest sort of service asset as well.

So far as the truck field is concerned, the assertion is truthfully made, that no instrument is so particularly adapted as the Eisemann Magneto with automatic spark control. By the very nature of its design and construction, the automatic spark control Eisemann Magneto means more mileage per gallon of gas and oil, and greatly increased life both of engine and car itself.

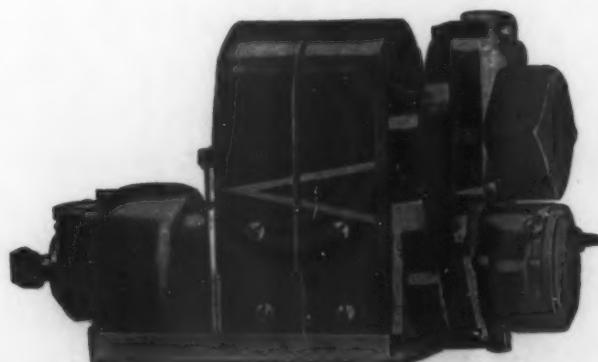
If you are not familiar with this particular type of Eisemann Magneto, the story will interest you. Won't you send for it?

Fifty Truck Makers
Now Use Eisemann
Ignition.

The Eisemann Magneto Co.

Sales and General Offices
32-33d St., Brooklyn, N.Y.

New York 123 W. 52d St.	Indianapolis, Ind. 514 N. Capitol Ave.	Detroit, Mich. 802 Woodward Ave.
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SCHWARZ WHEELS

The Wheels for Service

Why experiment with wheels of uncertain value when you know your trucks are going to be judged by their ability to give long and satisfactory service?

The slightest weakness that develops in the wheels is going to damage the reputation of the truck, no matter how high class the other units may be.

The risk is too great for you to use any but the very best wheels obtainable; for, while the initial cost may be a trifle higher, their use is the most economical in the end.

The way to secure satisfactory wheels is clearly blazed; for automobile engineers and manufacturers have proved that SCHWARZ WHEELS are the best, and provide the greatest strength, safety and economy.

As a result, practically all the better cars and trucks are SCHWARZ-equipped, and their presence is a selling asset of great value. The reasons for this are clearly set forth in our booklet, "Bear the Burden." Send for a copy.

The Schwarz Wheel Co.

Frankford

Philadelphia

Pennsylvania

Get-Together Convention OF **National Motor-Truck Interests**

HELD UNDER THE AUSPICES OF THE
Motor Truck Club of America
Electric Vehicle Association of America
Society of Automobile Engineers
AND
Allied Organizations

**October 7th, 8th, 9th and 10th
Detroit, Michigan**

Convention will be attended by Manufacturers of, Dealers in, and Owners of all forms of self-propelled commercial cars

The Only Opportunity of the Year for General Co-operation

**October 7th
Manufacturers' Day**

Papers and Discussions on Merchandising and Maintenance,—open to manufacturers only.

**October 8th
Dealers' Day**

Papers and Discussions on Dealers' Problems. Open to dealers only.

October 9th and 10th

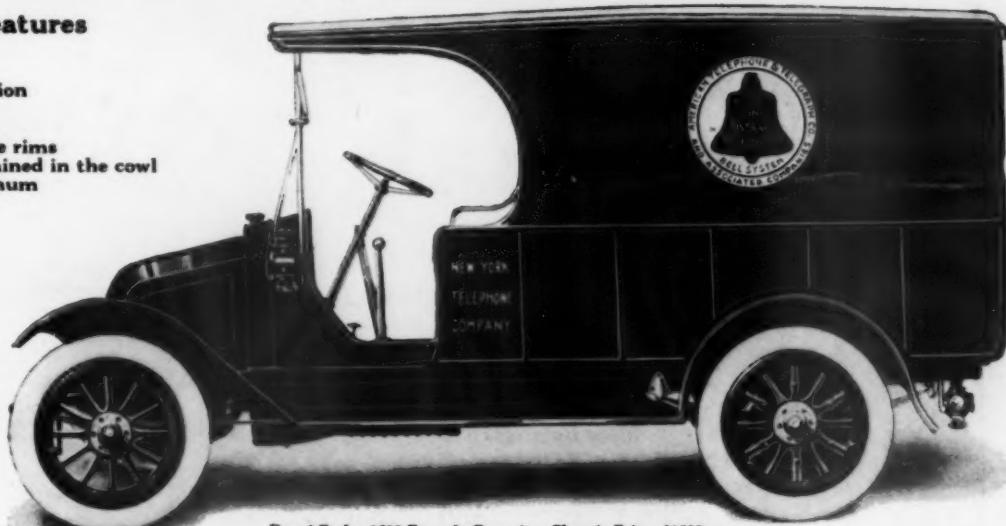
Open convention, attended by all interests, at which the tentative plans suggested by the other meetings will be presented and a general plan formulated and adopted.

Everybody interested in the advancement of the Truck Industry are earnestly urged to attend this get-together convention

The New Stewart

Stewart Features

Continental motor
Bosch magneto
Brown-Lipe transmission
Timken axles
Spicer joints
Firestone demountable rims
Fedders radiator contained in the cowl
Panel bodies of aluminum



Panel Body, 1500 Pounds Capacity, Chassis Price, \$1500

A Better Truck—A Bigger Opportunity for Dealers

Here is the new 1500 pound Stewart—the light delivery truck that is years ahead of any other on the market—with 500 less parts than any other truck of its type, more simple, more fool-proof, more economical of tires and gasoline consumption.

THE Stewart truck has always proved a money-maker for dealers. With its added features, this new Stewart will make more money for dealers than ever before.

For the new Stewart is built of absolutely the finest materials purchasable today. No truck at any price has better material and workmanship than the Stewart.

Why Stewarts Sell So Fast

Stewart trucks always—everywhere—make good, as they have made good for three years. We honestly do not know of a single dissatisfied owner.

We do not know of a single case where a Stewart truck has been discarded for any other type of truck.

50 per cent of our business comes from merchants who have used other makes of delivery trucks.

Our sale of repair parts for a year averaged only \$1.37 per truck.

Owners report 5,000 to 8,000 miles from a set of tires.



Express Body with Top, 1500 Pounds Capacity, Chassis Price, \$1500

When Writing, Please Say—"Saw Your Ad. in the C C J"

In 120 Cities and 80 Lines of Trade

These records indicate why Stewart trucks are today making money for dealers and merchants in over 120 cities in more than 80 lines of business in the United States, Canada and South America.

These performances account for the enviable repeat order record of Stewart trucks. For instance, the Bell Telephone Company, which purchased 9 Stewarts, now has a fleet of 19. The Buffalo Evening News has increased its fleet of Stewarts from 6 to 11. The Wagner Pastry Co., Newark, N. J., operate 8 Stewarts; the Peerless Laundry Co., Los Angeles, 5.

Other repeat orders have come from the Item Biscuit Co., Omaha; Bonwit-Teller & Co., Fifth Avenue, New York; Gerhart-Lang Meat Co., Buffalo; Rice & Kelly, Pittsfield, Mass.; Kearns & Carroll Silk Co., Paterson, N. J. And so on and so forth.

Ask anybody about the Stewart. Write for complete information about the new Stewart. Write today. Find out about our opportunity to dealers. Ask for our book, "How Motor Delivery Pays."

A New Policy for Dealers

Our dealership proposition is an unusually liberal one. We do not require dealers to put up a lot of deposit money and contract for a big number of trucks. With our increased facilities, which means larger output, we so arrange our schedule as to have a certain number of trucks ahead at all times. Thus we can assure prompt deliveries.

Stewart trucks are supplied with any type of commercial body, also bodies for ambulances, police patrols, casket wagons, hotel buses, etc.

Write today and find out how it will be to your advantage to handle the Stewart.

Stewart Motor Corporation, Buffalo, N.Y.

T. R. Lippard, President

R. G. Stewart, Vice-Pres. & Chf. Eng.

R. P. Lentz, Sec. & Treas.

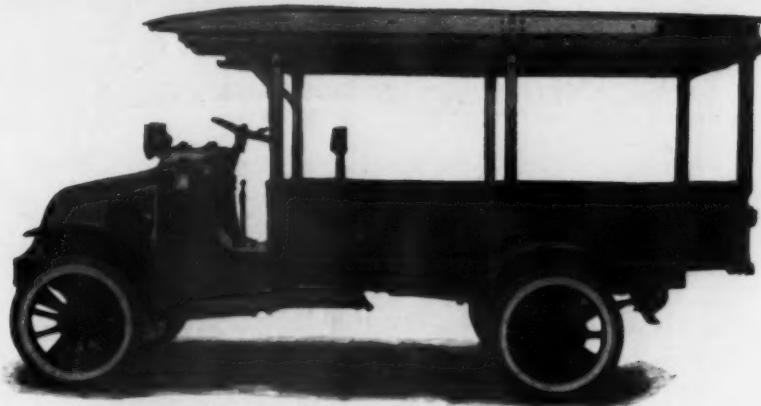


When Writing, Please Say—"Saw Your Ad. in the C C J"

The KREBS TRUCK

and Its Wonderful Automatic Governor

Any live dealer can sell this—the only line of automatically governed, worm-driven trucks



Model G, One Ton

When you can offer your trade a line of trucks that are characterized by silence, adaptability, efficiency, economy and durability, you have a line that will sell. That's just what you have in the KREBS. It is silent, because it is worm-driven. Adaptable, because it is used with profit in almost every line of business. Efficient, because its design, construction and materials make it so. Economical, because the KREBS Automatic Variable Governor absolutely compels economical operation, regardless of the ability or disposition of the driver. Durable, because it is built to last and to render continuously efficient service for an indefinite period.

What an array of arguments you have in selling the KREBS! The worm drive is the drive of today. It is better and more efficient than any

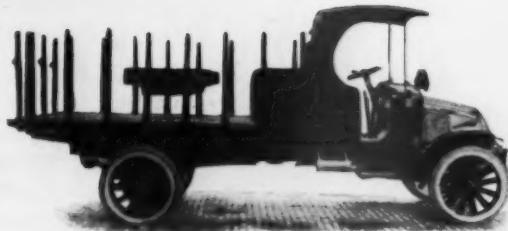
other. The Timken-David Brown Worm Drive is the leader in the field, and it is that wonderfully economical, silent and efficient drive that is now in the KREBS Trucks. This properly constructed and mounted drive gives great reductions from engine speed without intermediate gearing or loss of power. It never needs adjustment or causes trouble, and requires no attention save lubrication. It shows continuous torque and has a tremendously long life.

Add to this the high quality of the parts: such as Continental Motor, Brown-Lipe Transmission, full floating rear axle, etc., the tremendous operative economy effected by the Krebs Automatic Governor, and the reputation of the truck for giving service, and you have irresistible selling points.

Write for complete information and the report of the Philadelphia test in which the KREBS far outshone all competition. We'll give you convincing proof that the KREBS is the truck to sell.



Model E, 1/2-Ton Truck



Model H, 2-Ton Truck

THE KREBS COMMERCIAL CAR COMPANY, Clyde, Ohio



The Final Result of Years of Successful Truck Building

The Denby truck is the product of men who have helped to make some of the few great successes among commercial motor-vehicles. Their names stand for achievement.

And the Denby represents the last word in mechanical perfection.

The internal gear drive, for instance, is something that engineers have been working on for years. Denby construction embodies this feature, in a form at once simple, trouble-proof and exceptionally efficient. There is absolutely no question that the successful truck of the future will be internal-gear-driven; for no other method offers the same advantages of silence, smoothness, economy and minimum of wear.

There are other points of mechanical superiority in the Denby truck—too many to mention here. You can get them from the descriptive circular which will be mailed you free on request.

But remember that right design and construction are but one of the factors which mean profits to the dealer handling motor trucks.

Right selling-methods—right co-operation with the dealer—right education of the prospective buyer—these are equally essential.

And these things the Denby organization has developed to a degree hitherto undreamed-of in the industry.

Denby trucks are sold through the dealer, not to the dealer.

Read the next page and see how.

Denby Motor Truck Co., 22 Dubois St., Detroit, Mich.



A Real Money-Making Truck Proposition for the Dealer

There's plenty of money for the dealer in selling motor trucks.

The reason he hasn't made more up to now is almost entirely the fault of the manufacturer.

For the manufacturer hasn't been selling trucks to the *user*, but to the *dealer*. Once a truck was on the dealer's floor the maker put it up to Providence to move it. And Providence had other things to look after.

That isn't the way we are going to sell Denby Trucks.

We've had an expert traffic man at work for months looking into haulage problems in different lines of business. He'll be able to give our dealers clinching facts and figures, bearing on a prospect's own business, that will put across many a sale.

More than that. We're listing the prospects in the territory of our dealers—thousands of them. And we're going after them with the strongest possible line of direct follow-up—not merely general stuff, but real up-to-the-minute data on their own business.

We've a dozen ways to line up prospects for you; and turn them into sales.

And in the 1500-pound Denby you have the size unit that appeals to the largest possible number of substantial business men.

We have the right truck with the right men back of it. If you're the right dealer, we want you with us.

Denby Motor Truck Co., 22 Dubois St., Detroit, Mich.

The Edison-Equipped Electric Truck

is the Ultimate Solution of the most important problem now confronting the Warehouse and Storage Business—*i. e.* Transportation.



Why Edison Storage Batteries?

Because Edison Nickel-Iron-Alkaline Storage Batteries have the following advantages in this kind of service:

- 1.—They may be "boosted" at very high rates and charged sufficiently in a short time to meet emergency conditions.
- 2.—They are everlastingly on the job and require no expert attention in the garage or on the road.
- 3.—They may be left idle or worked for months on very small daily mileage without injury or extra care.
- 4.—They are guaranteed to be capable of developing **100 per cent** of rated capacity during **four full years**, thereby eliminating all risk on the purchaser's part that the profits of the road will be spent on repairs or renewals.

Economy plus Reliability plus Permanence

The Warehouse Business is a fertile field for the Central Station and Electric Truck Manufacturer. We have a Co-operative Campaign we would like to discuss with you.

Edison Storage Battery Company
141 Lakeside Avenue - - - - Orange, N. J.

Which Truck Is Best of the Famous Big Four?

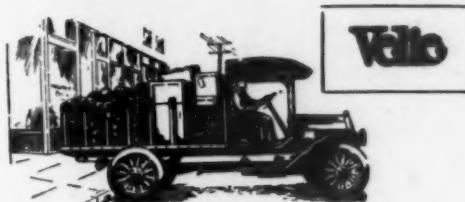
Experienced buyers of motor trucks now choose between four great makes. Each of the four is backed by millions. All are in the business to stay. Among them competition is keen. Almost daily, keenly competitive tests between these four great makes of trucks are establishing which is the best. For all are in use by the largest corporations—who use trucks by the dozen.

In pulling power the Velie Truck, the only one of the big four unadvertised until now, proves that a more powerful, slower running motor will in competitive tests out-pull and out-wear all high-speed, small-powered motors.

In three-ton trucks all four makes have 5 or 6 inch frames—channel shaped, or I-beam. But the Velie in addition to having a 6-inch I-beam frame has a 4-inch sub-frame. And in heavy hauling this extra sub-frame proves its wonderful worth.

Experienced buyers can tell by comparison of specifications why it is that the Velie is winning the fiercely competitive tests between the four best makes of trucks.

Any Velie agent has these truck contest results on file—they are convincing—ask to see them.



Velie Motor Vehicle Company - Moline, Ill.

HERZ PLUG



The reasons for HERZ PLUG'S superiority to ordinary makes are definite and obvious. The insulation is DOUBLE STONE. The electrodes are PLATINUM-ALLOY. There are FOUR SPARKING POINTS. HERZ PLUG is SELF-CLEANING. It is GUARANTEED A FULL YEAR.

Price, \$1.50. Order from your dealer or
HERZ & CO., 245 W. 55th St. (near B'way), New York

The Lavigne Gear Co.

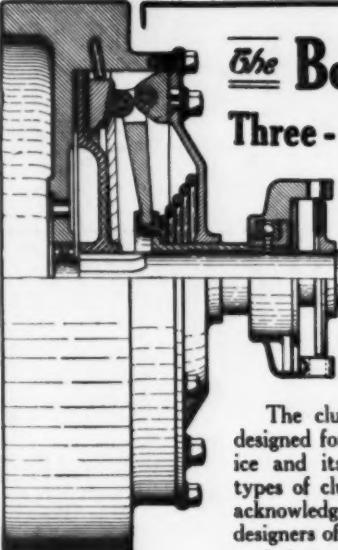
Pioneer
Truck Steering Gear
Manufacturers

FOR

Trucks, Pleasure Cars and Tractors

WE FURNISH OUR GEARS WITH DRAG LINKS
WRITE FOR BLUE PRINTS

RACINE, WISCONSIN



The Borg & Beck
Three-plate dry disc
Clutch
offers a real
solution of
the clutch
problem

The clutch has been especially designed for truck and tractor service and its superiority over other types of clutch now in use is freely acknowledged by engineers and designers of the highest standing.

It has a light friction disc that will not manifest any drag in releasing. Its engagement is gradual and positive, and it will not grab, stutter or slip. Does away with gear shifting in crowded traffic by means of friction-slipage. Can be slipped indefinitely without damage.

Truck, tractor and automobile makers are invited to write for complete description.

The Borg & Beck Co.
Moline, Ill.



StegeMAN

MANUFACTURING POLICY



Our idea in building trucks is not to build the most—(QUANTITY)—our idea is to get permanent satisfied customers and users, and there is only one absolute way of doing this—

USE THE WORLD'S BEST UNITS

(Not second best or something nearly as good.) We use Continental motors, Brown-Lipe nickel-steel gears throughout in both transmission and differential, Timken bearings, Eisemann automatic advantages, magneto, electric spark, chrome-vanadium steel, forging nickel steel in all bolts and pins plus "STEGEMAN" simplicity and 10 special features of design—each one of which has proved in practice an item of maintenance economy.

Our Users from Coast to Coast are the Country's largest and most prominent buyers.

Write us and have our literature for reference

STEGEMAN MOTOR CAR CO., Milwaukee, Wis.



Power for Every Purpose

Maximum Power, Speed and Endurance with Minimum Cost for upkeep and operation. Extreme Simplicity with Unequalled Efficiency. Perfect Balance. Long Life. You get all these advantages when you equip your commercial cars or pleasure cars with

THE RUTENBER MOTOR

Fours and Sixes suited to the requirements of all kinds of motor-driven vehicles. Standard or Unit Types. All L-Head, Four Cycle. The Rutenber Motor practically guarantees a ready sale for the car or truck that carries it.

We invite manufacturers to investigate our motors and our facilities for giving service. Literature on request.

The Rutenber Motor Company
Marion - - - Indiana

CANDLER



"Safety First" is the watchword of successful Motor Truck designers. An efficient cooling system plays an important part in modern Truck design. A Radiator that cools under extreme conditions and gives constant service is surely essential.

CANDLER Radiators are particularly adapted to Commercial Vehicles. Their design, construction and ease of repair affords the maximum of strength and efficiency. Added to this is a completely equipped factory, and men with over ten years' experience in the development of successful radiators.

CANDLER Special Radiators are worthy of your serious consideration. Their remarkable performance aids largely in keeping the Truck "Always on the Job."

An opportunity to demonstrate our claims is all we ask. May we have it?

CANDLER RADIATOR CO., DETROIT
"SAFETY FIRST" Radiators

RADIATORS



The Car that Proved a Real Solution of Delivery Problems

Price, \$635—Capacity, 1000 lbs.

A real commercial car—strong, rugged, durable—of oversize parts and high quality, at a price which makes it available for merchants of every character. Scores of dealers are finding it the money maker of their careers—it may be such for you. Write for information.

The Touraine Co., Philadelphia, Pa.

Plant where	Vim Cars are made	Capacity doubled to meet demand of 60 days
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**GEAR
BRONZES**

CRAMP

**BEARING
METALS**

The best motor cars and trucks, those famed for their sturdiness and long service, boast the **CRAMP METALS**. The world's greatest battleships have spread the fame of **CRAMP METALS** world wide. The high standard of precision, accuracy and quality set in these battleships is not approached in any other engineering feats. Everywhere and every day **CRAMP METALS** become a part of some great commercial enterprise, simply because their quality is known. Why experiment? Specify—

"CRAMP BEARING METALS AND GEAR BRONZES"

The William Cramp & Sons Ship & Engine Building Company, Philadelphia, U.S.A.



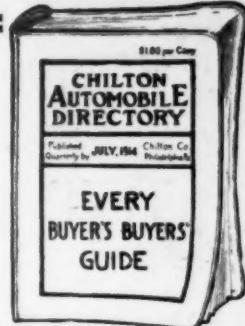
Highland Standard Bodies for Light Chassis

The design of these bodies has been standardized and we manufacture them in two sizes and four styles.

Always in stock for prompt delivery.

Send for Catalogue No. 10

THE HIGHLAND BODY MFG. CO., Cincinnati, Ohio



You Can Get
New Numbers **CHILTON AUTOMOBILE DIRECTORY** \$1.00 Each
OF THE

Do not continue to use an issue after it becomes old and obsolete—order a New Copy at least once a year. If you continue to use the book after it is nine months or a year old, you will be wasting time and postage writing to dead names. It is issued in January, April, July and October.

PRICE, \$1.00 PER COPY

CHILTON COMPANY :: Market and Forty-ninth Streets, Philadelphia, Pa.

BUCKEYE Motor Truck Jacks

Buckeye Motor Truck Jacks are safe, reliable and made to stand the wear and tear for which they are intended. They are fully guaranteed, and cannot possibly drop with a load. They are made from Steel Drop Forgings, best finish and workmanship throughout.

Get our prices before you place your orders for jacks, we can save you money.

No.	Height Bar Down	Raise of Bar	Height Bar Up	Weight	Capacity	List Price
7	11 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	18"	16 lbs.	2 $\frac{1}{2}$ tons with formed handle	\$10.00
13	14 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	20 $\frac{1}{2}$ "	26 $\frac{1}{2}$ "	3 "	15.00
14	14 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	20 $\frac{1}{2}$ "	33 "	5 "	16.00
9	11 $\frac{1}{2}$ "	6"	17 $\frac{1}{2}$ "	10 "	1 $\frac{1}{2}$ " "	6.00

Write today for descriptive catalog. Made only by

THE BUCKEYE JACK MFG. CO., Alliance, Ohio

When Writing, Please Say—"Saw Your Ad. in the C C J"

The Jeffery "Quad"



Climbing a 49% grade in factory test

The four-wheel-drive "Quad" climbs over soft ground.



Going over a vertical hurdle in factory test

Power on all Four Wheels!

FRANCE went to war the other day, carrying her provisions on four-wheel-drive trucks. The same day the Parsons Lumber Company, of Rockford, Illinois, enlisted a Jeffery four-wheel-drive truck for handling lumber.

The same week there gathered at Kenosha, Wisconsin, more representatives of more lines of business than ever before attended a similar conference. They came to witness the demonstrations of a four-wheel-drive, four-wheel-steer, four-wheel-brake motor truck.

The next week 300 motor car dealers, representing practically every state in the Union, assembled for the same purpose. Every day this week, and every week, demonstrations are being held at Kenosha—attended by business and transportation experts.

Moving pictures have been taken—to be shown in every part of the country. New articles have been written—run in class publications and newspapers. Transportation specialists are turning their eyes to Kenosha, Wisconsin. Dealers are buying—and selling to their customers.

The source of this suddenly aroused interest? How has it all happened so quickly?

An Army Officer Comes to Kenosha

Two years ago an American Army Officer, in his search for more efficient means of mobilizing troops, came to a Kenosha motor car maker.

He laid before this concern the high cost and slowness of the four-mule-team method of moving supplies and ammunition. He pointed out the difficulties of operating with two-wheel-drive trucks under the adverse conditions which inevitably confront troops in active service.

The name of the motor car maker was The Thomas B. Jeffery Company. The most skilled Jeffery engineers and transportation experts were put to work on the problem. The result was the Jeffery Quadruple Drive



This is the way the "Quad" looks in Army work



The Parsons Lumber Co., of Rockford, Ill., find the "Quad" remarkably efficient for their work

Truck—now already beginning to be widely known as the Jeffery "Quad"—a four-wheel-drive, four-wheel-steer, four-wheel-brake motor truck.

The United States Government has been using the "Quad" for over a year in its Commissary and Aeroplane Corps. The Government is satisfied.

War, the destroyer, has been instrumental in developing a machine destined to become a vital factor in the progress of peace. Military necessity has given rise to a new high water-mark of efficiency in commercial motor trucking methods.

Business Gets the Benefit

The armies of the world need four-wheel-drive motor trucks.

The Parsons Lumber Company and all business concerns with heavy hauling problems get the benefit. You get the benefit if you have heavy hauling to do. You get lower costs—greater speed in handling. You get a strategic advantage over competitors.

The oil producers of California are using "Quads" to pull their heavy-laden trailers over bad stretches of road. Mining concerns are buying. "Quads" are at work here and there through the great grain regions of the Northwest. Lumber dealers, department stores, wholesalers, city fire departments, brewers, coal merchants, contractors and builders—all businesses which do heavy hauling—are welcoming the Jeffery "Quad."

Dealers are stocking up—already making sales.

The Jeffery "Quad" is built to go everywhere a four-mule team can go—through the deepest mud, over steep hills—carrying two tons on its back where the ordinary motor car or horse team cannot possibly move a load. The forward wheels climb while the rear wheels push.

"Anywhere a Four Mule Team Can Go"

You can take a load in a "Quad" right up to the point where it is needed.

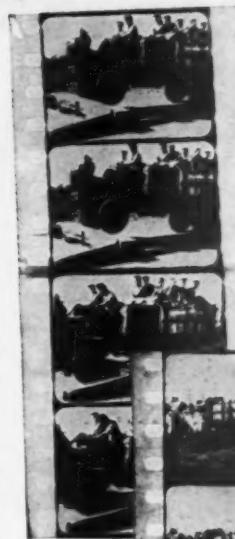


Here the load is cast iron.

The "Quad" Pulls Trailers



As the movies caught it.



Look at the Pictures on These Pages

Here is a description of some performances made by this truck for moving picture purposes.

First the truck speeds up 200 yards—going 14 miles an hour—then stops within eight feet. Irresistible brakes, applied on all four wheels and drive shaft, are the secret.

Picking up quickly, the Quad takes a series of three 16-inch hurdles, built of heavy planks piled one on top of the other, presenting a perpendicular front.

A quick turn follows. All four wheels, actuated together, co-operate. Forty-two feet is all the space required for the complete turn.

From here the driver steers into a plowed field, where at times the mud is so soft the wheels sink in to the hubs. The Quad pulls through steadily without even hesitating.

Through this field there is a deep ditch, the sides of which form an angle of 45 degrees. The front wheels let the truck down into the hollow, then begin to climb the other side. The back wheels push. The Quad pulls out easily. It backs down in again; the rear wheels climb backwards, the front wheels push now. The task is done backwards with as great facility as forwards! Water in the ditch to a depth of 34 inches is no hindrance.

The last test is the most spectacular. The driver approaches a 49% grade—lumber, piled in irregular steps. The Quad climbs. Holds itself at any point. Goes to the top. Backs down safely!

The Meaning in Dollars and Cents

Your trucks will never have to climb piles of lumber. They probably will not have to negotiate deep ditches, nor travel over soft plowed fields, nor is it intended that the truck will ever have to perform such feats in ordinary service.

The "Quad" takes its load through ditches



But they do frequently have to travel over bad roads, through mud holes, and up steep hills. They meet with much rough going. Many times you ask them to bear heavier burdens than they can carry.

Many times you spend money on slow, inefficient methods of hauling—you use horses and mules—because you haven't been able to get trucks that could do the work. Many times you lose business; you lose money because of delays—because your transportation facilities are *too slow—too uncertain*.

Read the Story of the Jeffery Quad

Read it *now*—whether you are in the market or not. Read this story of achievement. It will be sent you free of charge.

Read how the Jeffery Quad has won its efficiency, not through increased weight and expense, but through superior construction and engineering skill—how its tremendous power is generated by a small, light, high-speed power unit of the type made famous by Jeffery—how the wheels are turned by an internal spur gear, applied not on the hub but at point half way to the rim, giving a powerful leverage—how the very slight excess in gasoline consumption is more than offset by the saving on tires—how the Jeffery Quad enables business men to solve their trucking problems at *low cost*.

Read the story *now*.

Post Yourself Now on This Ultimate Type of Truck

The booklet will be sent you free of charge—without obligation. We want the business men of this country to know and appreciate the Jeffery Quad. We are glad to furnish you with the facts.

The Thomas B. Jeffery Company also makes high-grade rear-axle drive trucks which have given unusual satisfaction in many lines of business—a three-quarter ton and one and a half ton truck, at \$1300 and \$1650 respectively. Complete body department maintained.

What the Jeffery Quad Does

Pulls with all four wheels
Brakes on all four wheels and drive shaft
Steers on all four wheels
Carries two tons on its back
Goes through mud up to hubs
Travels through water 34 inches deep
Turns within 42 feet
Does its work with a small high speed motor
Economizes tires
Costs but \$2750



The Thomas B. Jeffery Company
Main Office and Works, Kenosha, Wisconsin

COVERT TRANSMISSIONS



Of the Highest Quality

Covert Transmissions are the result of many years' successful transmission building—today they are recognized as the best—not only in point of service and durability but also in regard to quietness and all-around efficiency.

Made in various models for different sizes and types of cars—Covert Transmissions will free you from transmission troubles. Let us show you how they fit your construction.

Covert Motor Vehicle Co.
SALES OFFICE
Detroit, Mich.
FACTORY
Lockport, N. Y.

Baker Electric Trucks

These eight points of BAKER superiority appeal to any user of motor trucks:

Double Brakes: Afford extra safety in controlling heavy loads on hills. Joints bronze bushed; shoes asbestos lined.

300% Overload Capacity Motor: Won't burn out. Extra wide driving chain runs with oil bath, in cast aluminum box.

Extra Equipment Included: Volt ammeter or ampere hour meter, hub or dash odometer, electric bell or horn, without charge.

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Control Lever Just Under Steering Wheel: Enables driver to keep both hands on wheel all the time.

Springs Extra Tough: Will not break or crack; designed for 50% overload. Spring end and bracket bronze bushed.

Front and Rear Axles: Unusually strong tough steel drop forgings. Spring supports forged to axle.

The Baker Motor Vehicle Company
CLEVELAND

Adams Trucks
"Deliver the Goods"

Greater Values With a Lower Price—One-Ton Chassis

\$1850

That the price is lower you will see at a glance. The increased values are just as easily recognized. To the thoroughness of Adams' construction, and its marked simplicity of every detail affecting its control and maintenance, we have added these important features:

Continental Motors are now used exclusively on all Adams Models.

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Bodies built, of course, for any trade, on 1, 1½ or 2 ton chassis. Adams Trucks are standardized for more than one hundred different lines of business.

We want to hear from wide-awake dealers in unoccupied territory. Write today.

THE ADAMS BROS. COMPANY
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First American Truck Manufacturers to use the French type of hood; with radiator at rear of motor. Bodies made in all styles, to suit any industry.

PREVENTS NOISY GEARS ELIMINATES LEAKY GEAR CASES



SPEEDOLENE

Is Revolutionizing Motor Truck Gear Lubrication

Where the pressure on axles and bearings is greatest—as with heavy pleasure cars and loaded trucks—the superiority of **SPEEDOLENE** is best demonstrated. This wonderful gearing lubricant accomplishes what no other oil, grease or compound has ever been able to do.

"Let Your Truck be the Judge"

Remember, **SPEEDOLENE** is purely a mineral lubricant and does not contain any grease, fat, lye, soda, acid or water, or anything injurious to the finest metal.

GRADE "SS" for gears in heavy pleasure cars and motor trucks.
GRADE "S" for gears in automobiles.

SOLD BY LEADING DEALERS EVERYWHERE

CONTINENTAL ASBESTOS CORPORATION
Manufacturers of Asbestos Lubricants, etc.; Spedolene, Journolene, Asbestolene, Cupolene, Axolene and Gearolene
WORCESTER, MASS., U. S. A.

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Crown Worm-Drive Motor Trucks

1 Ton—1½ Ton—2½ Ton

A COMPLETE SELLING LINE OF
DEPENDABLE TRUCKS

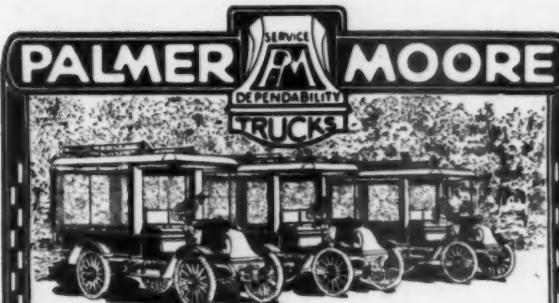
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Crown Worm-Driven Trucks Stand Supreme

Send for complete catalog, terms and detailed information. Write today.

CROWN COMMERCIAL CAR CO.
Milwaukee, Wis., U. S. A.

Factories: North Milwaukee, Wis.



RESULT OF A COMPETITIVE TEST

20 Truck Order for Parcel Delivery Service

The Clearing House Parcel Delivery Co., of Boston, Mass., makes Palmer-Moore its standard for light delivery equipment.

Absolutely smooth running qualities, maximum tire economy and extreme simplicity are reasons for Palmer-Moore efficiency. These are what win the trade and earn repeat orders.

Let us show you why it costs less to operate and maintain the Palmer-Moore than any other truck of similar capacity.

1600 lbs. Capacity. All Bodies
Write us today. Address Dept. "C"

Palmer-Moore Company, Syracuse, N. Y.



200 REPEAT ORDERS FROM TWELVE OF BRADSTREET'S LEADING FIRMS

AMERICA'S representative business houses operating the largest fleets of motor vehicles are the most consistent purchasers of Packard equipment.

More than 50 per cent of Packard truck sales are "repeat" orders, from critical big buyers and other satisfied customers.

Many of these companies, after comparative tests, have standardized their hauling with Packard equipment.

Quantity purchases and repeat orders by old established and nationally known firms emphasize the dominant position occupied by Packard trucks.

CRITICAL BIG BUYERS OF PACKARD MAXIMUM SERVICE TRUCKS

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Adams Express Company
American Express Company
Anheuser-Busch Brewing Assn.
Armour & Company
John Wanamaker & Company

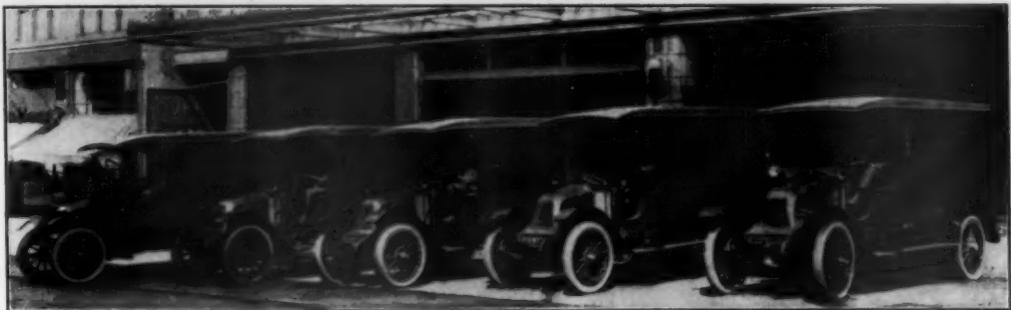
Loose-Wiles Biscuit Company
Marshall Field & Company
National Cash Register Company
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Swift & Company
The Crane Company

**ASK THE MAN WHO OWNS ONE
PACKARD MOTOR CAR Co., DETROIT**

LINCOLN HIGHWAY
CONTRIBUTOR

LICENSED UNDER
KARDO PATENTS

Why the Bon Marche Stores, Seattle, Wash., Purchased Two More $\frac{3}{4}$ -Ton Lippard-Stewart Trucks After They Had Used Three of the Same Capacity for Seven Months



This Fleet Averages Approximately 50 Miles a Day Under Severe Conditions

Remarkable Work Over the Hills of Seattle

The appearance of the original cars and the favorable comment they created for the Bon Marche stores; their remarkable quietness after seven months of service on wearing grades; their low operating expense and surprisingly low cost for repairs, led to the second purchase of

Lippard-Stewart Trucks
are now running in
nearly every section of
the country, in over 70
lines of trade.



Radiator at Dash
The Sign
of the Lippard-Stewart at Dealers

Read These Reasons for the Specifications on These Cars:

Continental Motor—35 H. P. (2 and $\frac{1}{2}$ -ton), 30 H. P. (1-ton, $\frac{3}{4}$ ton) Selected for great durability and "get there" power. The long stroke motor for trucks.

Automatic Speed Governor—An absolute protection against foolish waste of power and ignorant driving.

Eisemann Magneto—Gives very hot spark on low or starting speeds as well as on high speeds.

Cone Clutch—For simplicity and great dependability.

Brown-Lipe Transmission, Timken Axles and Bearings—Both

of recognized QUALITY and standard excellence.

Worm Drive (David Brown)—(Standard on 1-ton, $1\frac{1}{2}$ -ton, 2-ton. On $\frac{3}{4}$ -ton, extra above bevel drive.) Gives steady, even drive with minimum loss of power.

More dependable and durable than chain or bevel-spur gears. The kind that gained fame on the London omnibuses after other drives had failed.

Wheelbases that suit the load.

Big Size Tire Equipment.

Left Steering, Center Control.

DEALERS:—Get in Touch with Us Now on the Line

3 $\frac{1}{2}$ -Ton that gives rapid service and long-run satisfaction in light delivery **\$1650** work

1-Ton with 8 to 9 $\frac{1}{2}$ ft. loading space, power that never fails, durability unsurpassed **\$2000**

1 $\frac{1}{2}$ -Ton that fills the gap in light and heavy-duty trucks with great economy **\$2300**

2-Ton A big seller in wholesale and contracting trades. The big truck that produces big results. **\$2600**

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DISTRIBUTORS AND SERVICE STATIONS IN LEADING SECTIONS OF THE COUNTRY



Three 1 $\frac{1}{2}$ -Ton Worm-Drive Trucks Purchased in June, 1914, by the War Department for Work on the Mexican Border

When Writing, Please Say—"Saw Your Ad. in the C C J"

WORM DRIVE

SIGNAL

CHAIN DRIVE

ONE-TON MOTOR TRUCKS

"FULLY GUARANTEED ON SOLID TIRES"



Grocers will find their delivery service greatly increased—not only in radius, but also in volume and profit to themselves by the installation of Signal Motor Trucks.

The sales possibilities of the one-ton Signal are practically unlimited. Made with the option of either worm or chain drive, in two lengths of wheelbase, the Signal, in type, capacity and construction, represents the utmost in utility and service to the customer.

Nearly every delivery problem can be solved to the best advantage and profit by the one-ton Signal.

The constructional units of the Signal are the best in the field—thoroughly standardized by long, hard service—the price is very reasonable, and if you will take the time to look into the conditions in your territory we know we can convince you of the merits of our proposition.

Worm Drive Model

Timken-David Brown
Worm Drive Rear Axle
Timken Front Axle and Bearings
Continental Motor
Gemmer Steering Gear
Detroit Springs
Eisemann Magneto

Chain Drive Model

Timken Axles and Bearings
Russell Jack Shaft
Covert Transmission
Gemmer Steering Gear
Continental Motor
Stromberg Carburetor
Hartford Clutch

\$1500 Chassis

With driver's seat and
standard equipment

WRITE TODAY

Chassis \$1400

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DETROIT, U. S. A.

DETROIT MADE

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